

Does eating a fourth meal (siu-yeh) before bedtime affect sleep quality and dream experiences?

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Summary. This study examined the relationship between night eating, sleep quality, and dream experiences. A total of 215 Hong Kong participants completed the Night Eating Questionnaire, the Pittsburgh Sleep Quality Index, and the Dream Intensity Scale and answered some questions about their frequency of food intake between dinner and bedtime, food choice for night eating, and beliefs regarding the effects of night eating and satiety on dreams. The overall results indicate that night eating as a pathological propensity or normal habit is positively related to the phenomenological experience of dream intensity and this relationship is moderated but cannot be fully explained by sleep quality or the beliefs about the effects of night eating and satiety on dreams. Additionally, night eating is extremely common in Hong Kong and is related to poor sleep quality. However, the feeling of satiety before bedtime does not appear to modulate subjective dream intensity.

Keywords: Dream Intensity Scale; night eating; nightmares; satiety; Siu-yeh

1. Introduction

Thus far, there have been only two empirical studies directly investigating eating habits and dream experiences. In their small-scale survey (7 males, 42 females), Kroth, Briggs, Cummings, Rodriguez, and Martin (2007) found that dream recall, recurring dreams, and sex dreams were correlated positively with a preference for organic foods but negatively with a preference for fast foods. A recent study conducted by Nielsen and Powell (2015), which involved a much larger sample of undergraduate students (126 males, 255 females), revealed similar, yet more intricate interactions between eating habits and dream characteristics. Specifically, the report of disturbing dreams was positively correlated with several measures of pathological eating factors, such as binge-eating, less reliance on hunger-satiety cues, emotional eating, the tendency to lose control over eating, and the intention to influence bodyweight and body shape by controlling food intake. On the other hand, the report of vivid dreams was correlated positively with eating healthy foods, longer intervals between meals or without eating, and more reliance on hunger-satiety cues and negatively with eating unhealthy foods and the tendency to lose control over eating. In view of these two patterns of correlations, Nielsen and Powell conjectured that it is visceral sensations and the ability to access those sensations that might forge a connection between eating behaviors and dream experiences.

Besides interoceptive awareness, Nielsen and Powell identified two other important factors that modulate the relationship – that is, folk beliefs and sleep quality. In their sample, 11.5% of participants believed that eating certain

foods, especially dairy products, could cause disturbing or bizarre dreams and 9.5% claimed that eating late at night seemed to affect their dreams. Participants who held the belief of food-dependent dreaming reported significantly more disturbing dreams than did the other participants. The effect of attributing dream experiences to eating late at night was robust. When it was factored in, the between-group difference in disturbing dreams was no longer significant. By the same token, Nielsen and Powell found that the relationship between pathological eating factors and disturbing dreams was largely mediated by sleep quality; after the effect of sleep quality was partialled out, most pathological factors were no longer correlated with disturbing dreams, except binge-eating and the tendency to alter body weight and shape by controlling food consumption.

In their study, Nielsen and Powell asked participants to indicate whether they had noticed that eating late at night seemed to affect their dreams or sleep. Nevertheless, they had not assessed participants' actual night eating behavior. If the belief that eating late at night would lead to changes in dreams has an impact on dream experiences, it follows that night eating behavior as well might alter dream experiences. Night eating has been most often studied as a disorder, called night eating syndrome, which according to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.) (DSM-5; American Psychiatric Association, 2013), is an eating disorder signified by excessive food intake after the evening meal or eating after awakening from sleep. The original core criterion proposed by Allison et al.'s (2010) research group is more specific – that is, consumption of at least 25% of daily food intake after the evening meal and/or nocturnal awakenings with ingestions at least twice a week.

The same research group (Allison, Stunkard, & Thier, 2004; Allison et al., 2008) has developed the Night Eating Questionnaire for assessing the severity of night eating syndrome in accordance with their proposed criteria. The severity of night eating syndrome assessed through this questionnaire has been demonstrated by different research groups (e.g., Allison et al., 2008; Cleator, Abbott, Judd, Wilding, & Sut-

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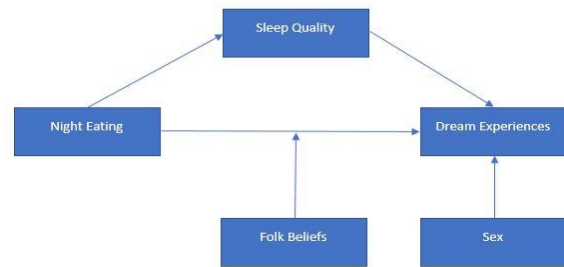
ton, 2013; Kucukgoncu, Tek, Bestepe, Musket, & Guloksuz, 2014; Nolan & Geliebter, 2016; Yoon et al., 2015) to be associated with poor sleep quality. The similar finding has also been reported by studies using other measures of night eating syndrome, such as the Night Eating Diagnostic Questionnaire and Night Eating Syndrome History and Inventory (Nolan & Geliebter, 2012). The relationship between night eating and poor sleep quality does not appear to be mediated by other external variables given that the relationship still sustains even with some key factors being taken into account, such as body mass index and depressive mood (e.g., Kucukgoncu et al., 2014; Yeh & Brown, 2014).

There is ample evidence that poor sleep quality and sleep disturbances augment the overall subjective intensity of dreaming as typically reflected by dream recall and nightmare frequencies (e.g., Lancee, Spoomaker, & Van Den Bout, 2010; Levin, 1994; Schredl, 2001, 2003; Schredl, Erlacher, Reiner, & Woll, 2014; Yu, 2016; Yu & Thompson, 2016; see Schredl, 2009, 2010, for a review) and the incidence of specific dream motifs, such as themes involving vigorously bodily movements, proprioceptive senses, physical inhibition of body movements, and psychological prohibition of certain behaviors (Yu, 2016; Yu & Thompson, 2016). Taken together, sleep quality is likely to act as a mediator bridging night eating and dream experiences.

It is interesting that night eating, while being deemed to be an unhealthy or pathological behavior in the West, is very common in southern China – especially in Hong Kong. Ironically perhaps, night eating is ipso facto regarded as a food culture of Hong Kong; restaurants that provide both dinner and late-night buffets are popular in Hong Kong. In Chinese language, there is a specific word for denoting the night meal between supper and sleep – 消夜 (Cantonese pronunciation: siu-yeh; Chinese pronunciation: xiao-ye). The word siu-yeh can also be used as a verb to describe the behavior of eating to pass the time at night. In contrast to the English term night eating, which can broadly refer to any delayed circadian patterns of ingestions, the Chinese word siu-yeh means more than eating late at night and refers precisely to the meal after dinner. This connotation of siu-yeh is unequivocal for Chinese people. In addition, although siu-yeh can range from snacks to a full-sized meal, it usually implies a meal similar to supper, such as having a late-night buffet at a hotel, a hotpot or Teochew cuisine (潮州打冷; Chiu Chow da lang) at a Chinese restaurant, and noodles, congee, seafood, or stir-fired dishes at a street stall (大排檔; dai pai dong). Indulging oneself in a big meal like these after dinner most probably would not be considered a pathological behavior among Hong Kong people insofar as night eating is so common and just part of everyday life in Hong Kong. According to a secondary analysis (Huang, 2014) of a Hong Kong population-based survey (Hong Kong Student Obesity Surveillance project; N = 24,885 adolescents), 50.2% of adolescents reported night eating and 21.9% had their fourth meal three nights a week.

Nielsen and Powell (2015) studied some pathological characteristics pertaining to eating disorders and the beliefs in the effects of specific foods and eating late on dream experiences. Although they demonstrated that such beliefs would promote disturbing dreams, they had not evaluated participants' night eating behavior as a syndrome or normal habit. Is night eating or having siu-yeh related to dream experiences? If it is the case, would the relationship between night eating and dreaming be mediated by

Figure 1. The Hypothetic Model of the Present Study



sleep quality or alternatively, by the folk beliefs that night eating would affect dreams? The study presented here was geared toward answering these questions by investigating night eating habits, sleep quality, and dream experiences of Hong Kong Chinese. It was hypothesized that night eating behavior would adversely affect sleep quality and therefore increase dream experiences (see Figure 1). It was further conjectured that beliefs about the effect of night eating on dreams might modulate the triadic relationship. The effect of sex was taken into account in the analyses in view that sex differences in various dream variables are well documented in the literature, for example, women's stronger subjective intensity of dreaming and more vivid sensory experiences during dreaming (Yu, 2008, 2010, 2012).

2. Method

2.1. Participants

A total of 215 (97 males and 118 females) participants aged between 15 and 24 ($M = 18.4$, $SD = 2.44$) were recruited for this study. Most of them (56.3%) were secondary school students and 94 were university students. Their participation was voluntary and without payment.

2.2. Instruments

All participants completed a set of questionnaires, including the Night Eating Questionnaire, a question about food choice for night eating, a single-probe measure of weekly night eating frequency, a Likert scale for assessing subjective satiety before bedtime, the Pittsburgh Sleep Quality Index, the Dream Intensity Scale, and questions about their beliefs regarding the effects of night eating and satiety on dreams.

Night Eating Questionnaire. The Night Eating Questionnaire (NEQ) was designed by Allison et al. (2004, 2008) to measure the severity of night eating syndrome. The 14 items of the NEQ, which tap into cravings and urges to eat after evening meal and waking up at night, control over night eating behavior, and circadian changes in mood, match well with the diagnostic criteria proposed by the same research group (Allison et al., 2010). For instance, Item 5 requires respondents to rate the percentage of their daily food intake being consumed after suppertime but before bedtime on a 5-point scale anchored by 0 = 0% and 4 = 76-100%. Respondents who rate 2 (26-50%) or higher on the scale may meet the criteria of ingesting 25% or more of the total daily calories after supper. The NEQ score was obtained by the sum of the 14 items, except Item 13, which functions as a differential diagnostic question for ruling out the presence of

parasomniac eating disorder. Allison et al. (2004) suggested a cutoff score of 25 or above for identifying people being at risk of night eating syndrome.

Food choice for night eating. Participants were asked to indicate whether they would consume each of the nine food categories after supper but before sleep: 1) alcoholic beverages, 2) non-alcoholic beverages, 3) cereals and cereal products, 4) egg and egg products, 5) milk and dairy products, 6) seafood, 7) vegetables and vegetable products, 8) sugar and sweets, and 9) others. The diversity of food intake for night eating was indicated by the number of food categories chosen by participants.

Night eating frequency. Participants were asked to rate their weekly frequencies of night eating on an eight-point scale ranging from 0 to 7.

Satiety Scale. A scale developed by Holt, Miller, Petocz, and Farmakalidis (1995) was employed to assess participants' subjective sense of fullness before sleep. The levels of satiety were represented by seven points on a line: Extremely hungry, hungry, semi hungry, no particular feeling, semi satisfied, satisfied, and extremely full.

Pittsburgh Sleep Quality Index. The Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) contains 19 self-rating items, which generate seven component scores, such as subjective sleep quality, habitual sleep efficiency, and daytime dysfunction. The sum of these component scores gives a global score.

Dream Intensity Scale. The Dream Intensity Scale (DIS; Yu, 2012) is a well-validated instrument for assessing the subjective intensity of dreaming that characterizes a person. It evaluates four primary factors: Dream Quantity, Dream Vividness, Diffusion, and Altered Dream Episodes. Each factor can serve as an individual scale. The first factor is composed of five items that measure the quantitative aspect of usual dream activities shared by most people, including the frequencies of dream awareness, recalling the main content of dreams, multiple dreams in a single night, nightmares, and nightmare awakenings. The DIS requires respondents to indicate their frequencies on a standardized 10-point absolute scale (0 = never to 9 = almost every day) for answering these five items. In addition to the total Dream Quantity score, the Regular Dreams and Bad Dreams subscale scores can be generated by adding up respectively the first three item scores and latter two item scores. Only the Dream Quantity factor – the most rudimentary facet of subjective dream intensity – was investigated in this study.

Both the DIS and PSQI have an item for quantifying distressing dreams. In particular, the PSQI Item 5.h asks respondents to indicate their weekly frequencies of bad dreams over the past month by choosing one of the four options (i.e., not during the past month, less than once a week, once or twice a week, and three or more times a week). On the other hand, the DIS Item 3 measures the frequency of nightmares over the past few years (e.g., less than once a year, about once a year, two to six times a year) and the raw scores of items can be converted into monthly frequencies. Details of the development and psychometric properties of the DIS are available in Yu's (2008, 2009, 2010, 2012) previous reports.

Beliefs about the relationship between night eating and dreaming. At the end of the questionnaire set, participants were questioned directly whether they believed that night eating would affect dreaming. A similar question about the effects of satiety before bedtime on dreams was posed. If

participants held such beliefs, they were asked to briefly elaborate on their views regarding how night eating or satiety would impact dream experiences.

3. Results

The average frequency of night eating of the current sample was 2.08 per week (SD = 1.749), with 33.5% of participants eating after supper but before sleep three times a week or more often. The most common type of food choice for night eating was sweet products (42.8%), followed by cereal (37.2%) and dairy products (28.4%). The average NEQ score was 16.53 (SD = 4.108), 2.8% of participants reaching the suggested clinical cutoff of 25 or above. As indicated by the NEQ Item 5, 33.5% of participants consumed more than 25% of their daily food intake after supper. Night eating frequency per week was significantly correlated with the NEQ score, $r = .239$, $p < .001$, the diversity of food intake after supper, $r = .305$, $p < .001$, and the PSQI, $r = .184$, $p = .007$. In a similar way, the NEQ score significantly varied with the diversity of food intake after supper, $r = .250$, $p < .001$, the satiety score before sleep, $r = -.137$, $p = .044$, and the PSQI, $r = .370$, $p < .001$. Both night eating frequency ($r = .203$, $p = .003$; $r = .254$, $p < .001$) and the NEQ score ($r = .389$, $p < .001$; $r = .301$, $p < .001$) were most strongly associated with the Components 1 (subjective sleep quality) and 7 (daytime dysfunction) of the PSQI across the seven components.

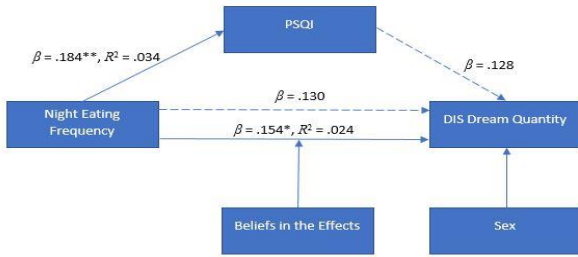
No significant sex difference was found for night eating frequency, the NEQ, and the PSQI (all p values $> .05$) but the satiety index was larger in females ($M = 3.35$, $SD = .990$) than in males ($M = 3.03$, $SD = 1.141$), $t = 2.177$, $p = .031$, Cohen's $d = 0.300$. Likewise, female participants ($M = 6.55$, $SD = 3.699$) scored significantly higher in the DIS Bad Dreams subscale than did male participants ($M = 5.18$, $SD = 4.342$), $t = 2.508$, $p = .013$, Cohen's $d = 0.341$. However, the sex difference for the DIS Dream Quantity scale

Table 1. Regression Models for the DIS Dream Quantity Score

Scales	F	R ²	β	t
Model 1	5.151*	.024		
Night eating frequency			.154	2.270*
Model 2	4.360*	.040		
Night eating frequency			.130	1.899
PSQI			.128	1.873
Model 3	4.360*	.040		
Night eating frequency			.141	2.096*
Beliefs in the effects of night eating or satiety on dreams			.142	2.083*
Sex			3.508	-0.613
Model 4	7.719**	.042		
Night eating frequency			.204	2.778**

Note. * $p < .05$, ** $p < .01$

Figure 2. The PSQI as a Mediator between Night Eating Frequency and the DIS Dream Quantity Scale



($t = 1.701, p = .285$) and Regular Dreams subscale ($t = 0.744, p = .458$) was not significant.

The belief that night eating would have an impact on dreams was uncommon in the present sample – reported by only 8.4% of participants. Similarly, only 12.6% of participants believed that the feeling of satiety would affect dream experiences. Of the 215 participants, 180 (83.7%) did not believe such claims. Participants who held either belief ($M = 7.45, SD = 4.408$) scored higher on the DIS Bad Dreams subscale than did the non-believers ($M = 5.63, SD = 3.922$), $t = 2.466, p = .014$, Cohen's $d = 0.437$. This effect could be indirectly caused by the greater percentage of females (22%) than males (9.3%) being in the believer group, Pearson Chi-Square = 6.356, $p = .012$, Phi = .172, $p = .012$. Despite the rareness of the beliefs among the participants, the DIS dream scores were significantly correlated with the measures of night eating. Specifically, the Dream Quantity scale showed a significant association with night eating frequency, $r = .154, p = .024$, but not with the NEQ total score, $r = .085, p = .217$. On the other hand, the Bad Dreams subscale was significantly correlated with the NEQ score, $r = .136, p = .046$, but not with night eating frequency, $r = .098, p = .153$. Both the Dream Quantity ($r = .116, p = .091$) and Bad Dream scores ($r = .088, p = .196$) did not display a significant association with the satiety score. The Bad Dream score significantly varied with the PSQI, $r = .190, p = .005$, and its Component 4 (habitual sleep efficiency), $r = .153, p = .025$, Component 5 (sleep disturbances), $r = .277, p < .001$, and Component 7 (daytime dysfunction), $r = .146, p = .032$. It was significantly correlated with six of the nine sleep disturbances listed in the PSQI, with its correlation coefficients with the weekly frequencies of having bad dreams, $r = .471, p < .001$, waking up in the middle of the night or early morning, $r = .291, p < .001$, getting up to use the bathroom, $r = .283, p < .001$, being the largest.

Night eating frequency significantly predicted the PSQI score, $F = 7.475, p = .007$ (see Figure 2). It also significantly predicted the DIS Dream Quantity score (see Table 1, Model 1) and its standardized beta coefficient, albeit being reduced to .130 ($t = 1.899, p = .059$) after entering the PSQI ($t = 1.873, p = .062$) into the model, was still larger than that of the PSQI (Model 2). The Sobel test indicated that the PSQI score was not a significant mediator between night eating frequency and the DIS Dream Quantity score, $z = 1.544, p = 0.123$. Likewise, the beliefs about the night eating and satiety effects on dreams could not eliminate night eating frequency as a predictor of the DIS Dream Quantity score (Model 3) and merely mildly reduced the beta weight of night eating frequency as compared to Model 1. Sex was

Table 2. Regression Models for the DIS Bad Dreams Score

Scales	F	R ²	β	t
Model 1	4.023*	.019		
NEQ			.136	2.006*
Model 2	4.530*	.041		
NEQ			.076	1.055
PSQI			.161	2.228*
Model 3	5.184**	.047		
NEQ			.137	2.049*
Beliefs in the effects of night eating or satiety on dreams			.168	2.499*
Model 4	5.648*	.031		
NEQ			.175	2.377*
Model 4	7.719**	.042		
Sex			-.195	-2.683**
NEQ			.184	2.533*

Note. * $p < .05$, ** $p < .01$

not a significant predictor in the model. A stepwise regression analysis for predicting the DIS Dream Quantity score with the PSQI and night eating frequency was performed on the 180 participants who did not believe in the effects of night eating and satiety on dreams. The resultant model excluded the PSQI (Model 4).

The NEQ score significantly predicted the PSQI ($F = 33.851, p < .001, R^2 = .137, \beta = .370, t = 5.818, p < .001$), which in turn significantly predicted the DIS Bad Dreams score ($F = 7.943, p = .005, R^2 = .036, \beta = .190, t = 2.818, p = .005$). Although the NEQ score significantly predicted the Bad Dreams score (see Table 2, Model 1), its predictive value dropped below the significance level ($t = 1.055, p = .292$) when the PSQI was entered into the regression model (Model 2). Accordingly, the PSQI could be a critical mediator between the NEQ score and the Bad Dreams score (see Figure 3). The Sobel test indicated that the PSQI significantly mediated the association between the NEQ

Figure 3. The PSQI as a Mediator between the NEQ and DIS Bad Dreams Subscale

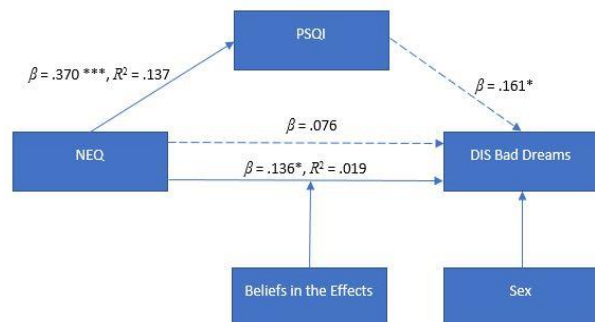
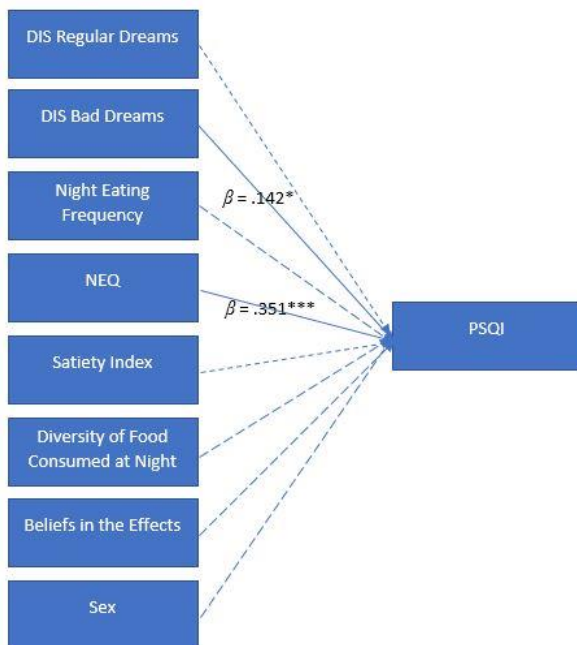


Figure 4. An Alternative Model



score and the Bad Dreams score, $z = 2.083$, $p = 0.037$. By contrast, the NEQ was still significantly predictive of the Bad Dream score even when the beliefs in the night eating and satiety effects were taken into consideration (Model 3). A stepwise regression analysis was carried out in the subsample of non-believers to predict the Bad Dreams score with the PSQI and the NEQ score. Similar to the stepwise regression model for the Dream Quantity score, the PSQI was eliminated by the analysis (Model 4). The stepwise regression analysis resulted in a similar model, even with consideration of sex (Model 5). The Sobel tested showed that the PSQI was not a significant mediator between the NEQ and Bad Dreams scores in the subsample of non-believers, $z = 1.363$, $p = 0.173$.

The foregoing regression analyses assumed that sleep quality modulated dream experiences. The reverse, however, might also be true (see Figure 4). A stepwise regression analysis was performed to test the extent to which the DIS Regular Dreams and Bad Dreams scores could predict the PSQI, taking into account sex, night eating frequency, the NEQ score, the satiety score, the diversity of foods consumed at night, and the beliefs in the effects of night eating and satiety on dreams. The resultant model was made up of the NEQ ($\beta = .351$, $t = 5.514$, $p < .001$) and Bad Dream scores ($\beta = .142$, $t = 2.228$, $p = .027$), with all other factors being removed, $F = 19.722$, $p < .001$, $R^2 = .157$. As indicated by the R^2 , the variance predicted by this regression model was larger than those predicted by the regression models presented in Tables 1 and 2. Lastly, whether participants consumed dairy products at night did not show a significant effect on any DIS and PSQI scores (t values ranged between -1.200 and 0.684 , all p values $> .05$).

4. Discussion

This study investigated the relationship between night eating, sleep quality, and dream experiences. The overall findings suggest that night eating as a syndrome or normal

habit is positively related to subjective dream intensity and this relationship is moderated but cannot be fully accounted for by sleep quality or folk beliefs about the effects of night eating and satiety on dreams. Moreover, using dream intensity and night eating to predict variance in sleep quality is more effective than predicting dream intensity with sleep quality and night eating. It appears, therefore, that although sleep quality can be to a large extent explained by night eating and dream intensity, there are some important factors other than night eating and sleep quality that influence dream intensity.

Over 30% of participants consumed food after supper three times a week or more often. Likewise, a third of the sample consumed more than 25% of their daily food intake after supper. Despite this alarming number of participants who potentially met the core criteria of night eating syndrome, only 2.8% of participants reached the NEQ clinical cutoff score. Accordingly, although as expected, night eating is extremely common in Hong Kong, it does not necessarily mean that more people in Hong Kong suffer from night eating syndrome or distress relating to night eating. For that reason, the diagnostic criteria for night eating syndrome should perhaps be refined before they can be pertinently applied to Hong Kong people.

Consistent with the previous evidence, the severity of night eating syndrome measured by the NEQ was found to be directly proportional to poor sleep quality indicated by the PSQI. It was furthermore shown to be positively correlated with weekly night eating frequency and the diversity of food intake after dinner. Both the NEQ and weekly night eating frequency exhibited a similar pattern of associations with the PSQI component scores. These findings corroborate that the NEQ and weekly night eating frequency evaluate two similar, yet distinct constructs. In addition to the positive association between night eating and poor sleep quality, the positive association between poor sleep quality and subjective dream intensity was also replicated in this study. Echoing Yu's (2016) previous evidence and Schredl's (2009) hypothesis, intermittent awakenings during sleep were found to increase with the number of nightmares.

The prevalence rate for the belief about the effect of night eating on dreams was very similar to that documented by Nielsen and Powell. The prevalence rate for the belief about the effect of satiety before bedtime on dreams was higher. Over 80% of participants, nevertheless, rejected both claims. As with Nielsen and Powell's previous findings, participants who embraced either belief experienced more nightmares than did the other participants. Dairy products were most frequently blamed by Nielsen and Powell's participants for causing disturbing and bizarre dreams. In the Chinese sample presented here, however, no significant differences were observed across all dream and sleep quality variables between participants who did and did not consume dairy products at night.

Over and above replicating past evidence, the current study found that although poor sleep quality and folk beliefs played a part in modulating the association of weekly night eating frequency to dream intensity, they could not adequately account for the association. On the other hand, poor sleep quality appeared to mediate the relationship between the severity of night eating syndrome and the intensity of nightmares. Nonetheless, for both the intensities of overall dream experiences and nightmares, the association still existed when only participants who did not hold the be-

liefs about the effects of night eating and satiety on dreams were considered. It was surmised that the visceral feeling of satiety before bedtime might mediate the relationship but both the intensities of overall dream experiences and nightmares did not vary with the satiety score.

The regression model for predicting sleep quality with the severity of night eating syndrome and the intensity of nightmares accounted for more variance than did any regression models assuming dream experiences as dependent variables. This implies that while night eating and dream experiences can constitute a relatively succinct model for explaining poor sleep quality, dream experiences are modulated by a wider range of factors. In a nutshell, folk beliefs, sleep quality, and satiety cannot provide a full explanation to the association between night eating and dream experiences identified by the present study. Future studies might be undertaken to search for other potential mediators and salient dream correlates. There is sizable evidence that depression plays a part in both night eating syndrome (e.g., Geliebter et al., 2016; Kim, Kim, Lee, & Jung, 2016; Oksuz, Orhan, Ekerbicer, Karaaslan, & Findikli, 2013; Thompson & DeBate, 2010) and dream experiences (e.g., Agargun & Cartwright, 2016; Bears, Cartwright, & Mercer, 2000; Miller, DeCicco, Dale, & Murkar, 2015; Yu, 2013a, 2013b, 2014). Accordingly, attempts might be made to test whether it is depressed mood that connects night eating and dreaming.

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