Prevalence of Nightmares by Work Environment

Nehemiah Klee
Mellon Pathways Research Group

The objective of this study was to see whether work environments can have an impact on nightmare frequency. The study was conducted through a single questionnaire distributed to a total of 57 participants over the course of 4 weeks in February-March 2025. The questionnaire was based on the SLOSH (Chungkham et al., 2013) and MADRE (Schredl et al., 2014) Questionnaires for a total of 36 questions. The results did not show a significant change in nightmare frequency based on the participants' workplace environment, but it did show a negative correlation based on age. Since dream content can influence morning affect (Barnes et al., 2021), if workplace stressors do increase nightmare rates, then productivity could be negatively influenced. A study reaching deeper into industries and gathering a more diverse sample of careers to be represented may provide a clearer conclusion. A study into the age disparity in nightmare frequency and work environment may be worth consideration.

Introduction

Background

Nightmares are a universal experience, but their distribution is not quite so universal (Schredl and Reinhard, 2011; Zadra and Donderi, 2000; Chivers and Blagrove, 1999). The continuity hypothesis of dreaming proposed by Hall and Nordby (1972) states that dreams are reflective of waking life activities and concerns. A study conducted by Schredl et al. (2020) suggests that this correlation logically extends to dreams related to one's workplace. The impact of these dreams does not appear to be confined to the act of dreaming itself (Barnes et al., 2021). However; one study into the effects of workplace related dream content found that different types of stressors correlated with different emotions experienced in subjects' dreams, which in turn led to different emotional affects in the morning (Barnes et al., 2021).

Another tool in this study is the Demand Control Support model designed originally as the Demand Control model by Karasek (1976) with support added as an additional variable by Johnson and Hall (1988). The model "predicts, first, stress-related risk and, second, active-passive behavioral correlates of jobs" (Karasek et al., 1998 p. 332) allowing for us to evaluate workplace environments of participants. The questionnaire adapted for this study to measure participant workplaces according to this model is the Swedish Longitudinal Occupational Survey of Health (Chungkham et al., 2013), which is an adaptation of the Job Content Questionnaire which is a much older and larger questionnaire with similar aims (Karasek et al., 1998).

Hypothesis

This study uses the Demand Control Support model (DSM) to measure the level of autonomy and the level of demand subjects may experience in their work life. According to the continuity hypothesis, waking life content and concerns are reflected in dreams. I expect participants whose workplace features higher demand and lower autonomy will have a higher frequency of nightmares than those whose jobs afford them lower demand and higher autonomy.

Significance

Since dream content has been demonstrated to have an effect on one's mood in the morning (Barnes et al., 2021), and different types of workplace stressors have been shown to correlate more heavily with certain emotions experiences within dreams, if certain industries experience higher levels of demand and lower autonomy then it may be more likely for employees to be starting their days off with negative affects which may affect productivity.

Method

Questionnaire

This study was conducted through an online anonymous questionnaire using questions incorporated from the Mannheim Dream questionnaire (MADRE) (Schredl et al., 2014) for dream content and recall measurement, and the Swedish Longitudinal Occupational Study of Health (SLOSH) (Chungkham et al., 2013) to measure workplace environment according to the Demand Support Control model. The MADRE was chosen for it's promise with retest reliability in its original form as demonstrated by Schredl et al. (2014) and Dyck et al. (2017). Minor grammar adjustments were made to both without changing the qualities of the questions asked. The Questionnaire was created using Google Forms.

Participants

There were 57 respondents in total. 55% of respondents were female, 36% were male, 7% were nonbinary, and 2% declined to specify. In age there was a wide variety from as low as 18 to as high as 79. The mean age was 31.9, the median age was 23, and the mode of the ages was 19. Participants were recruited through a mix of fliers distributed around the Virginia Commonwealth University campus (VCU), an information stand in Monroe Park also on VCU campus, promotion on social media, and the network effect as participants were encouraged to share the questionnaire with their friends and coworkers. The distribution period was from February 13th 2025 to March 16th 2025

Measures

The dream measurement portion of the questionnaire is made up of 20 questions, and is derivative from the Mannheim Dream Questionnaire (Schredl et al., 2014). The MADRE measures dream frequency, nightmare frequency, lucid dreaming frequency, dream content, and attitude towards dreams, among other things. This allows for a general picture to be constructed of a participants dream history (Schredl et al., 2014). For dream frequency, a 7 point scale was used (0 = Never, 1 = Less than once a month, 2 = About once a month, 3 = About 2 to 3 times a month, 4 = About once a week, 5 = Several times a week, 6 = Almost every morning). For measuring overall emotional intensity, a five-point scale was used (0 = Not at all intense, 1 = Not that intense, 2 = Somewhat intense, 3 = Quite intense, 4 = Very intense). To measure emotional tone, five categories were used (-2 = Not at all negative, -1 = Somewhat negative, 0 = Neutral, 1 = Somewhat positive, 2 = Very Positive). For nightmare frequency, lucid dream frequency, dream rumination, and deja vu experiences, an eight-point scale was used (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 = Two to three times a month, 6 = About once a week, 7 = Several times a week).

As in the original MADRE questionnaire, a definition was given alongside nightmare frequency that aligned with the ICSD-3 was given: “Definition: Nightmares are dreams with strong negative emotions that result in awakening from the dreams. The dream plot can be recalled very vividly upon awakening”. Lucid dreaming similarly featured a definition based on a previous study by Schredl and Erlacher: “Definition: In a lucid dream, one is aware that one is dreaming during the dream. Thus it is possible to wake up deliberately, or to influence the action of the dream actively, or to observe the course of the dream passively”. To measure nightmare distress a five-point scale was used (0 = Not at all distressing, 1 = Not that distressing, 2 = Somewhat distressing, 3 = Quite distressing, 4 = Very distressing). Participants were asked whether they had experienced recurring nightmares based on waking life experiences, this was measured through a simple yes/no. Participants were also asked to input the percentage of nightmares that were recurrent. Topics of childhood nightmares and age of first lucid dream occurrence was answered through a free-form answer box. Consumption of dream literature was recorded through a three-point scale (0 = No, 1 = One or two times, 2 = Several times) and then subsequently followed up by a five-point scale elaboratory question elucidating perceived benefit from consumption of dream literature, only to be answered if a participant answered other than “No” to the original question.

The final part of the MADRE questionnaire, measuring attitude towards dreams, was given a separate section to prevent potential interference with previous answers. The section comprises eight questions, and the answer options differ slightly from those provided in the English version of the MADRE to improve readability, now having two different five-point scales depending on the question. For meaningfulness of dreams, interest in learning more about dreams, and impact of dreams on waking life, an altered five-point scale is used (0 = Disagree Fully, 1 = Disagree Partly, 2 = Neutral, 3 = Agree Partly, 4 = Agree Fully). For the last two questions measuring meaning attributed to dreams and interest in dreams, a five-point scale similar to the original is used (0 = None at all, 1 = Not that much, 2 = Partly, 3 = A fair bit, 4 = A lot).

The third and final section of the questionnaire used for this study is nearly identical to the Swedish Longitudinal Occupational Survey of Health (SLOSH) (Chungkham et al., 2013), with minor grammatical corrections. Psychological demands were measured through five questions each using a four-point Likert scale ranging from 1-4 (1 = Never, 2 = Not Often, 3 = Somewhat Often, 4 = Often). The scale for a question in the Psychological demands section measuring conflicting demands was inverted. The portion measuring decision latitude consists of three categories: Skill discretion, containing four questions and measured with the same four-point Likert scale (1 = Never, 2 = Not Often, 3 = Somewhat Often, 4 = Often), decision authority, containing two questions, measured with the same four-point Likert scale (1 = Never, 2 = Not Often, 3 = Somewhat Often, 4 = Often), and social support at work, containing six questions, and measured with a different four-point Likert scale (1 = Strongly Disagree, 2 = Slightly Disagree, 3 = slightly Agree, 4 = Strongly Agree). The scale for a question within the decision latitude section measuring repetition was inverted. The SLOSH (Chungkham et al., 2013) was chosen for its ability to measure the characteristics of a participant’s work environment along the model provided by the Demand Support Control model in a simple and concise manner.

Procedure

Over half of the questionnaire responses were acquired through an information stand in Monroe Park, part of the Virginia Commonwealth University campus. Respondents acquired this way were not solely students, many also made up ordinary people present due to the public nature of the space. Participants were encouraged to share the questionnaire with friends and coworkers, fliers were given out with the intent to be given to others through the network effect. The questionnaire was also shared to social media sites, including groups centered around dreams and research surrounding them. This sample allows for multiple complications in the goals of this study. Due to the opt-in and self-paced nature of the questionnaire, there are few ethical concerns.

Results

Descriptive Statistics

Among the 57 participants, nightmare frequency was distributed as follows: Never (8.9%), Less than once a year (10.7%), About two to four times a year (39.3%), About once a month (14.3%), About two or three times a month (14.3%), About once a week (7.1%), Several times a week (5.4%), for a total of 100%. Dream tone was distributed as follows: Very negative (1.8%), Somewhat negative (33.9%), Neutral (33.9%), Somewhat positive (28.6%), Very negative (1.8%) for a total of 100%. Table 1 represents the correlation between the variables computed.

There was no statistically relevant correlation between high psychological demand low decision lattitude work environments and nightmare frequency. The data did not support the original hypothesis. There was a negative correlation between age and nightmare frequency: $r(55) = -0.335$ $p = 0.012$. There was also a negative correlation between nightmare frequency and dream tone $r(55) = -0.337$, $p = 0.011$. Unrelated to dreams, there was a positive correlation with age and decision latitude $r(55) = 0.336$, $p = 0.011$, as well as psychological demand: $r(55) = 0.377$, p 0.004.

Inferential statistics

The data from this study does not prove the hypothesis that people whose workplaces have high psychological demand and low decision latitude will have more frequent nightmares. There were other findings of interest, however. While nightmare frequency was not found to correlate with aspects of the work environment, they did correlate negatively with age: $r(55) = -0.335$ $p = 0.012$. This reinforces the results of prior studies showing age and nightmare frequency are negatively correlated (Chivers and Blagrove, 1999; Schredl et al., 2014; Schredl and Reinhard, 2011).

For workplace environments, as shown in Figure 3, the vast majority of workplaces represented in this study resided in either the low psychological demand and low decision latitude sector or the high psychological demand and high decision latitude sector. This means that the workplace environment described in the hypothesis was not well represented in this study.

Discussion

Summary of Findings

The original hypothesis stated that as a job became more psychologically demanding and the worker was given less decision latitude, they would have more nightmares. This was based on the Continuity Hypothesis (Hall & Nordby, 1972) that states that the subjects of our dreams are drawn from waking experiences or concerns. This concept was not reflected in the data collected, however, there was a correlation between age and increased decision latitude, as well as psychological demand in subjects' work environment, and this demographic experiences less nightmares. This leads to two possible conclusions, one being that as one gets older, nightmares will generally become less common. The second possible conclusion is that this type of work environment —represented by quadrant I in Figure 3— correlates with a lower nightmare rate.

Interpretation

The correlation between age and reduced nightmare frequency aligns with prior studies in the field (Chivers and Blagrove, 1999; Schredl et al., 2014; Schredl and Reinhard, 2011). The reasons for this are not clear, but could be attributed to lower stress levels.

The results showing older participants in an environment with high psychological demand and high decision latitude while exhibiting lower nightmare frequency may be explained by the theory of work stress suggested by Karasek et al. (1998). Karasek created a 2 axis matrix for the Demand Control Support model (Karasek et al., 1998) with the vertical axis representing decision latitude and the horizontal representing psychological demand. He suggested a hypothesis that the upper right quadrant, marking high psychological demand and high decision latitude, would be related to "good stress" which he suggested would involve "active behavior development" (Karasek et al., 1998) and "predict motivation, new learning behaviors, and coping pattern development" (Karasek et al., 1998). This sector was described as containing professions such as doctors, public officials, engineers, and teachers. With the continuity hypothesis stating that waking life concerns can affect dream content, and with previous studies suggesting stress can increase nightmare frequency, then coping pattern development and new learning behaviors may provide avenues to handle that stress, therefore reducing the impact of workplace on nightmare frequencies.

Table 1

Pearson's Correlations

Variable		Dream Tone	Nightmare Freq	Employment - FT/PT	Student - FT/PT	Decision Latitude	Psychological Demand	Age
1. Dream Tone	Pearson's r	–						
	p-value	–						
2. Nightmare Freq	Pearson's r	−0.337	–					
	p-value	0.011	–					
3. Employment - FT/PT	Pearson's r	−0.027	−0.196	–				
	p-value	0.846	0.147	–				
4. Student - FT/PT	Pearson's r	0.153	0.203	−0.602	–			
	p-value	0.261	0.133	< .001	–			
5. Decision Latitude	Pearson's r	0.151	−0.027	0.153	−0.294	–		
	p-value	0.268	0.846	0.261	0.028	–		
6. Psychological Demand	Pearson's r	0.181	−0.135	0.283	−0.377	0.881	–	
	p-value	0.181	0.321	0.035	0.004	< .001	–	
7. Age	Pearson's r	0.156	−0.335	0.483	−0.752	0.336	0.377	–
	p-value	0.250	0.012	< .001	< .001	0.011	0.004	–

Figure 1

Age vs. Decision Latitude

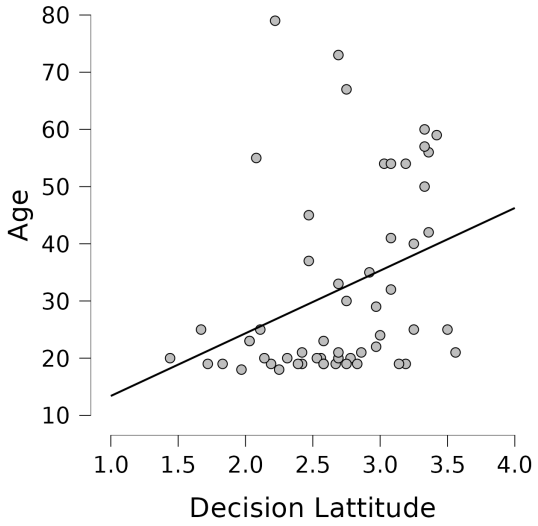
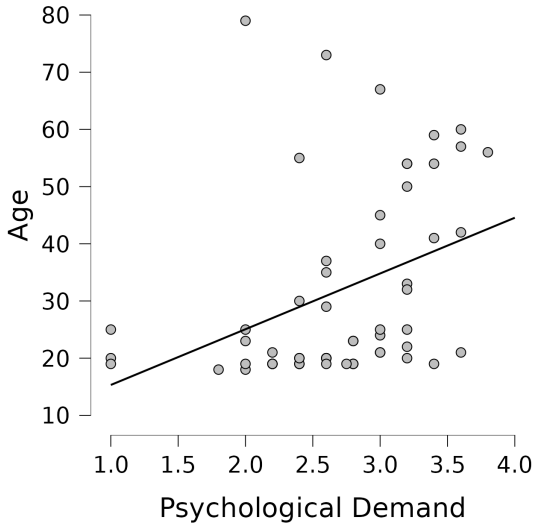


Figure 2

Age vs. Psychological Demand



If quadrant I does predict these behaviors and qualities, then it may be reasonable to expect a lower nightmare rate from a demographic whose workplaces are more likely to fall within it. Further studies are recommended to evaluate the first quadrant compared to other quadrants, with more controls in place to ensure equal representation of each type of workspace.

Limitations

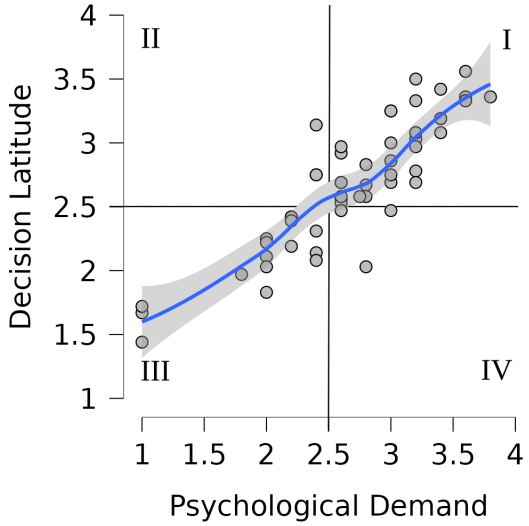
There were a few limitations to this study, the most significant of which are the demographics of this study. The study experienced barriers in distribution through the original outreach plans to get in contact with managers, heads of worker associations, and union leaders to disseminate the questionnaire to interested members of their respective organizations. This would have allowed for a larger portion of respondents who are deep into their careers and whose workplaces are more dominant in their lives compared to the heavily student-leaning demographics of the responses received. A second limitation is the short time frame of data collection due to project deadlines. Both limitations had an impact on the total number of participants in the study. It is suggested that future research designs include considerations for both of these limitations.

Implications

The results of this study do not validate the original hypothesis, so the expected implication of workplace stressors indirectly leading to a more negative morning affect does not appear to be likely. To test this hypothesis further it would be worth conducting a similar survey with broader outreach to get a more diverse sample of respondents. Of note are the

Figure 3

Workplace Characteristics in Responses



inferences that older individuals may have fewer nightmares due to working in a less stressful environment than younger individuals. Future research may identify the cause of the age disparity with workplace stress.

References

Barnes, C. M., Watkins, T., & Klotz, A. (2021). An exploration of employee dreams: The dream-based overnight carryover of emotional experiences at work. *Sleep Health*, *7*(2), 191–197. https://doi.org/10.1016/j.sleh.2020.11.001

Chivers, L., & Blagrove, M. (1999). Nightmare frequency, personality and acute psychopathology. *Personality and Individual Differences*, *27*(5), 843–851. https://doi.org/10.1016/S0191-8869(99)00033-1

Chungkham, H. S., Ingre, M., Karasek, R., Westerlund, H., & Töres Theorell. (2013). Factor structure and longitudinal measurement invariance of the demand control support model: An evidence from the swedish longitudinal occupational survey of health (SLOSH). *PLoS ONE*, *8*(8), e70541. https://doi.org/10.1371/journal.pone.0070541

Dyck, S., Schredl, M., & Kühnel, A. (2017). Retest reliability study of the Mannheim Dream Questionnaire (MADRE). *International Journal of Dream Research*, *10*(2), 173–176. https://doi.org/10.11588/ijodr.2017.2.38122

Hall, C., & Nordby, V. (1972, May 1). *The Individual and His Dreams*. Signet. https://archive.org/details/individualhisdre0000calv_r0q1/page/10/mode/2up

Johnson, J. V., & Hall, E. M. (1988). Job strain, work place social support, and cardiovascular disease: A cross-sectional study of a random sample of the swedish working population. *American Journal of Public Health*, *78*(10), 1336–42. https://doi.org/10.2105/ajph.78.10.1336

Karasek, R. (1976, June). *The impact of the work environment on life outside the job* [Doctoral dissertation, Massachusetts Institute of Technology]. https://eric.ed.gov/?id=ED142717

Karasek, R., Brisson, C., Kawakami, N., Houtman, I., Bongers, P., & Amick, B. (1998). The Job Content Questionnaire (JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of occupational health psychology*, *3*(4), 322–355. https://doi.org/10.1037/1076-8998.3.4.322

Schredl, M., Anderson, L. M., Kahlert, L. K., & Kumpf, C. S. (2020). Work-related dreams: An online survey. *Clocks & Sleep*, *2*(3), 273–281. https://doi.org/10.3390/clockssleep2030021

Schredl, M., Berres, S., Klingauf, A., Schellhaas, S., & Göritz, A. S. (2014). The Mannheim Dream questionnaire (MADRE): Retest reliability, age and gender effects. *International Journal of Dream Research*, *7*(2), 141–147. https://doi.org/10.11588/ijodr.2014.2.16675

Schredl, M., & Reinhard, I. (2011). Gender differences in nightmare frequency: A meta-analysis. *Sleep Medicine Reviews*, *15*(2), 115–121. https://doi.org/10.1016/j.smrv.2010.06.002

Zadra, A., & Donderi, D. C. (2000). Nightmares and bad dreams: Their prevalence and relationship to well-being. *Journal of Abnormal Psychology*, *109*(2), 273–281. https://doi.org/10.1037/0021-843X.109.2.273