Research Paper

A Psychometric Scale For Assessing Sleep Procrastination Behaviour

Mishra Ayushm[1*], Jaiswal Pooja[2], Sharma Kritarth[3], Kaur Jasleen[4]

[1]Postgraduate Student, Department of Psychology, Chandigarh University, Punjab, India
[2]Assistant Professor, Department of Psychology, Chandigarh University, Punjab, India
[3]Postgraduate Student, Department of Psychology, Chandigarh University, Punjab, India
[4]Postgraduate Student, Department of Psychology, Chandigarh University, Punjab, India

***Corresponding Author: Mishra Ayushm | Email: ayushmm2002@gmail.com**

ABSTRACT

Sleep procrastination, particularly the "revenge" variant motivated by reclaiming personal time, is a growing behavioural health concern. However, no validated psychometric instrument exists for the Indian population. This study aimed to develop and evaluate the preliminary psychometric properties, specifically the reliability and item-level discriminative ability, of a new scale measuring sleep procrastination behaviour.

The study sample comprised 347 college-going young adults aged 18-24 years (M ≈ 21.4 years; 199 females, 148 males) recruited from various universities in India. All participants scored 20 or more on the original Bedtime Procrastination Scale, indicating the presence of bedtime procrastination behaviour. A cross-sectional, quantitative design was employed. A self-constructed 43-item Sleep Procrastination Behaviour Scale was developed based on existing literature. Participants completed the scale online. For item analysis, total scores on the new scale were used to create a lower-scoring group (n=90) and a higher-scoring group (n=90) using the 27th percentile rule. Reliability (Cronbach's alpha) and independent samples t-tests were used to assess internal consistency and item discrimination. The scale demonstrated excellent internal consistency ($\alpha = .960$). A statistically significant difference was observed between the lower and higher procrastination groups on total scores, $t(178) = -32.19$, $p < .001$, with the higher group ($M = 183.64$) scoring substantially higher than the lower group ($M = 105.58$). Item-wise analysis revealed that 37 out of 43 items significantly differentiated between the two groups ($p < .001$). Notably, Item 14 ("I feel refreshed and energetic when I wake up the next morning") showed no significant difference ($p = .753$), indicating that even high procrastinators are aware of negative sleep outcomes.

The newly developed Sleep Procrastination Behaviour Scale demonstrates strong preliminary reliability and discriminative validity. It is a suitable instrument for assessing bedtime procrastination tendencies in the Indian young adult context, filling a critical gap in culturally relevant psychometric assessment.

Keywords: Bedtime procrastination, revenge bedtime procrastination, sleep behaviour, psychometric scale, item analysis, young adults.

How to cite this article: Ayushm M, Pooja J, Kritarth S, Jasleen K. A Psychometric Scale For Assessing Sleep Procrastination Behaviour. Int J Drug Deliv Technol. 2026;16(55s): 1229-1235. DOI: 10.25258/ijddt.16.55s.118

Source of support: Nil.

Conflict of interest: None.

INTRODUCTION

Sleep insufficiency has emerged as a pervasive public health concern in modern industrialized societies, with significant implications for physical health, cognitive functioning, and emotional well-being (Kroese et al., 2014). Despite the widespread recognition of the vital role of adequate sleep, a substantial portion of the global population consistently fails to obtain the recommended hours of rest. While traditional explanations have focused on external constraints such as demanding work schedules, shift work, or family responsibilities, a growing body of literature has identified a uniquely self-inflicted phenomenon: individuals deliberately or habitually delaying their bedtime in the absence of any external obligations preventing them from sleeping (Kadzikowska-Wrzosek, 2018). This behaviour, formally termed bedtime procrastination, and popularly known as "revenge bedtime procrastination," captures the notion of staying up late as an act of "revenge" against daytime hours consumed by work or a lack of personal autonomy (Kroese et al., 2014; Nauts et al., 2018).

The consequences of this behaviour are substantial. Bedtime procrastination has been consistently linked to self-reported insufficient sleep, higher levels of fatigue, and poorer sleep quality as measured by instruments like the Pittsburgh Sleep Quality Index (PSQI) (Kroese et al., 2014; Ma et al., 2020). It is also positively correlated with depression, perceived stress, and insomnia severity, indicating that it is not an isolated behaviour but part of a broader pattern of psychological vulnerability (An et al., 2019; Sirois et al., 2015). The dominant theoretical framework for understanding this phenomenon is self-regulation theory, which posits that individuals with lower trait self-control are more likely to delay their bedtimes.

This relationship is further complicated by chronotype, with "eveningness" (a preference for later sleep-wake times) partially mediating the link between poor self-regulation and bedtime procrastination (Kadzikowska-Wrzosek, 2018; Przepiórka et al., 2019).

The seminal academic work on bedtime procrastination was introduced by Kroese et al. (2014), who defined the construct and developed the original 9-item Bedtime Procrastination Scale (BPS). The BPS, a unidimensional measure, demonstrated good internal consistency (Cronbach's $\alpha = 0.88$) and has since become the gold standard in the field. Subsequent cross-cultural validations have been conducted, confirming the robustness of the single-factor structure in Korean (An et al., 2019; $\alpha = 0.86$, CFI = 0.963) and Spanish (Brando-Garrido et al., 2021; $\alpha = 0.83$, test-retest $r = 0.84$) populations. An important conceptual expansion was proposed by Magalhães et al. (2020), who distinguished between "bedtime procrastination" (delaying going to bed) and "while-in-bed procrastination" (engaging in non-sleep activities after getting into bed). Their study found a low correlation ($r = 0.158$) between the two, suggesting they represent distinct facets of sleep procrastination.

Despite this growing international body of research, a significant gap exists for the Indian population. A comprehensive search of the literature reveals no study that has developed or validated an Indian scale for bedtime procrastination or revenge bedtime procrastination. This gap is particularly concerning given the unique sociocultural context of India. Sleep is a culturally embedded behaviour, and in collectivist societies, sleep patterns are shaped by family and community norms rather than purely individual preferences (Airhihenbuwa et al., 2016). Furthermore, the prevalence of poor sleep among Indian students is alarmingly high. A systematic review by Chowdhury et al. (2020) found a pooled prevalence of insomnia of 52.1% among university students in South Asia, with individual Indian studies reporting rates as high as 70%. Factors such as intense academic competition (e.g., for JEE, NEET exams), high digital media consumption, and extended work hours may create a fertile ground for the "revenge" motivation, wherein individuals sacrifice sleep to reclaim a sense of personal time and autonomy (Gupta et al., 2020; Jeon et al., 2021).

Hypothesis, Aims, and Objectives

Given the absence of a validated instrument for this construct in India, this study was designed to address this critical gap. The primary aim was to develop and conduct a preliminary psychometric evaluation, focusing on item analysis, of a new self-report scale for assessing sleep procrastination behaviour among Indian young adults.

The specific objectives were: (1) to assess the internal consistency reliability of the newly developed Sleep Procrastination Behaviour Scale; (2) to compare total bedtime procrastination scores between groups of lower and higher procrastinators; and (3) to identify individual scale items that significantly differentiate between these two groups, thereby establishing item-level discriminative validity.

Based on the literature, the following hypotheses were formulated: (H1) The newly developed scale will demonstrate high internal consistency (Cronbach's $\alpha > .80$). (H2) A statistically significant difference will exist between the lower and higher procrastination groups in their total procrastination scores. (H3) Individual scale items will significantly discriminate between the lower and higher procrastination groups, as evidenced by significant mean differences on independent t-tests.

METHOD

Inclusion and Exclusion Criteria

Participants were eligible for the study if they met the following inclusion criteria: (a) were between 18 and 24 years of age, (b) were currently enrolled in a college or university, (c) possessed adequate comprehension of English to complete the questionnaire, (d) provided informed consent voluntarily, and (e) scored 20 or more on the original 9-item Bedtime Procrastination Scale (BPS; Kroese et al., 2014), indicating the presence of bedtime procrastination behaviour. The BPS uses a 5-point Likert scale, and a score of 20 represents a mean item score of approximately 2.2, which serves as a threshold for identifying individuals who report at least occasional bedtime delay. Participants were excluded from the study if they scored less than 20 on the BPS, were below 18 or above 24 years of age, were not currently enrolled in any educational institution, or submitted incomplete responses that suggested inattentive responding. No further exclusion criteria were applied.

Participant Characteristics

The final sample consisted of 347 college-going young adults, all of whom met the inclusion criterion of scoring 20 or above on the BPS. The mean age of participants was approximately 21.4 years (range 18-24 years). The sample included 148 males (42.7%) and 199 females (57.3%). In terms of educational qualification, approximately 73% (n=253) of the participants were undergraduate students, whereas 27% (n=94) were postgraduate students. Participants also reported their primary nighttime engagement patterns: approximately 73% (n=253) reported using social media and electronic devices during late-night

hours, while nearly 26% (n=90) reported staying awake primarily for study- or work-related activities.

Sampling and Sample Size

A non-probability purposive and convenience sampling technique was employed. The sample size was determined in accordance with recommendations for psychometric scale development, emphasizing an adequate participant-to-item ratio for reliable item analysis (a ratio of approximately 8:1 was achieved with 347 participants for 43 items). For the item discrimination analysis on the new scale, participants were divided into two groups based on their total scores. Following established procedures (Kline, 2015), the top 27% (n=90) were categorized as the higher procrastination group, and the bottom 27% (n=90) were categorized as the lower procrastination group. The middle 46% of participants were excluded from the group comparison analyses to maximize the distinction between groups.

Measures and Covariates

The primary measure was the self-constructed 43-item Sleep Procrastination Behaviour Scale. The preliminary version of the scale consisted of 43 statements reflecting various dimensions of sleep procrastination derived from an extensive literature review. These dimensions included delayed sleep behaviour (e.g., "I go to bed later than I intended"), nighttime leisure engagement (e.g., "I stay awake at night to enjoy personal time"), emotional justification for sleep delay (e.g., "I feel that I deserve some time for myself at night"), digital media involvement (e.g., "I continue using electronic devices even when I feel sleepy"), and the impact of postponed sleep on daily functioning (e.g., "I regret sleeping late the next morning"). Participants responded on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating greater tendencies toward sleep procrastination. The original 9-item Bedtime Procrastination Scale (BPS; Kroese et al., 2014) was used only for the purpose of screening participants for the inclusion criterion (score ≥ 20). No other covariates were included in the primary analysis.

Data Collection

Data was collected over a one-week period (18th November 2025 to 23rd November 2025) through both online (using Google Forms) and offline (paper-pencil) modes to maximize participant accessibility and convenience. Participants were recruited from various colleges and universities across India. Before administration of the questionnaire, all participants were provided with an information sheet explaining the study's purpose, procedures, and their rights. Written informed consent was obtained from each participant before any data were collected. Participants were first administered the original 9-item BPS. Those who scored 20 or above were then invited to complete the newly developed 43-item Sleep Procrastination Behaviour Scale. Participants were assured that their responses would remain strictly anonymous and confidential, and that no identifying information would be collected. The average time taken to complete both questionnaires ranged between 15 and 20 minutes.

Masking

Due to the nature of the research design, which involved a self-report questionnaire and no experimental manipulation, no formal masking procedures were implemented. Participants responded to the scale independently without any knowledge of how their individual responses would be compared to others. The researchers conducting the statistical analysis did not have access to any identifying information, ensuring objective data processing.

Psychometrics

A critical component of this phase of scale development was the estimation of reliability and item-level discriminative ability. The internal consistency of the 43-item scale was assessed using Cronbach's alpha coefficient. For item discrimination, independent samples t-tests were conducted to compare the mean scores of each item on the new scale between the lower (bottom 27%) and higher (top 27%) procrastination groups. This procedure allowed for the identification of items that could effectively differentiate between individuals with low and high levels of the target construct. An item was considered to have good discriminative ability if the t-test yielded a statistically significant result ($p < .05$) and the mean score was meaningfully higher in the high-procrastination group (DeVellis, 2017). All statistical analyses were performed using IBM SPSS Statistics for Windows, Version 23.0.

Data Diagnostics

Before conducting the main analyses, the dataset was screened for missing data and outliers. A total of 17 incomplete response sets were identified and removed from the dataset, resulting in the final sample of 347 complete cases. No further data imputation was necessary. The data distribution for the total scale score was examined and found to be approximately normal. No univariate or multivariate outliers were detected using boxplot and Mahalanobis distance procedures. The assumptions of independence of observations and homogeneity of variance for the independent samples t-tests were assessed; Levene's test was used to verify the equality of variances, and results are reported accordingly.

RESULTS

Participant Flow and Descriptive Statistics

All 347 participants included in the final analysis met the inclusion criterion of scoring 20 or higher on the original BPS, confirming that the sample was comprised of individuals who self-reported at least occasional bedtime procrastination. For the purpose of item discrimination analysis on the newly developed scale, total scores were calculated for all participants. The total scores on the 43-item scale ranged from 62 to 223 (possible range: 43-215). The mean total score for the full sample was 143.40 (SD = 32.22). Based on the total score distribution, the top 27% (n=90, scores ≥ 172) formed the higher procrastination group, and the bottom 27% (n=90, scores ≤ 115) formed the lower procrastination group. The two groups were well-separated, with no overlap in scores, providing a robust basis for item-level comparisons.

Reliability Analysis

The internal consistency reliability of the 43-item Sleep Procrastination Behaviour Scale was calculated. The scale demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of .960. This value substantially exceeds the recommended threshold of .80 for a reliable research instrument and is consistent with the high reliability coefficients reported for other bedtime procrastination scales (e.g., Kroese et al., 2014; An et al., 2019). The high alpha value indicates that the items in the scale have a strong shared variance and are collectively measuring a coherent underlying construct.

Comparison of Total Procrastination Scores

An independent sample t-test was conducted to compare the total bedtime procrastination scores between the lower and higher procrastination groups. The assumptions of the t-test were met; Levene's test for equality of variances was not significant ($F = 1.038$, $p = .310$), indicating that the homogeneity of variance assumption was satisfied. The analysis revealed a large and statistically significant difference between the two groups. The higher procrastination group (Group 2, n=90) had a mean total score of 183.64 (SD = 15.04), whereas the lower procrastination group (Group 1, n=90) had a mean total score of 105.58 (SD = 17.41). This difference was highly significant, $t(178) = -32.19$, $p < .001$. The 95% confidence interval for the mean difference ranged from -82.85 to -73.28, confirming the substantial separation between the groups. This finding strongly supports Hypothesis 2, demonstrating the scale's ability to differentiate between individuals with low and high levels of sleep procrastination behaviour.

Item-Wise Comparative Analysis

The core of the item analysis involved comparing the mean scores of each of the 43 individual items between the lower and higher procrastination groups using independent samples t-tests. The results of this analysis are summarized in the following sections and confirm Hypothesis 3. The group statistics and independent samples test results for all items are presented below. The analysis revealed that a vast majority of the items (37 out of 43) significantly differentiated between the two groups, with most items showing a probability value of $p < .001$.

Strongly Discriminating Items: Items with the most substantial mean differences were those reflecting core compensatory and digital engagement behaviours. For example, item 7 ("Going to bed on time is rarely possible because the night feels personally free") showed a mean difference of -2.33, $t(178) = -15.93$, $p < .001$, with the high-procrastination group scoring much higher (M=4.64) than the low-procrastination group (M=2.31). Similarly, item 28 ("I stay up late for entertainment, even when I have to get up early the next day") produced a mean difference of -2.43, $t(178) = -17.44$, $p < .001$, and item 32 ("I wish I could sleep earlier, but I can't resist staying up late") yielded a mean difference of -2.44, $t(178) = -18.15$, $p < .001$. Items related to regret also performed well, such as item 33 ("I regret the next morning for not sleeping earlier"), with a mean difference of -2.43, $t(178) = -18.41$, $p < .001$. These results indicate that individuals in the higher procrastination group strongly endorsed items reflecting the "revenge" motivation, poor self-control, engagement with digital entertainment, and subsequent regret.

Poorly or Non-Discriminating Items: While most items performed well, several items did not meet the criterion for discriminative validity. Items 18 ("When I wake up early, I feel better"), 22 ("It is usually possible to stop late-night activities and sleep on time"), and 24 ("Free time can usually be found during the day instead of at night") were excluded due to low item-to-total correlation and lack of significant mean difference, suggesting that these statements did not reliably differentiate between the two groups and may not be core components of the construct. Items 12 ("I sleep relatively early in the presence of my parents at home") and 23 ("Sleep is often chosen over staying awake for personal time") were withdrawn due to borderline significance.

Item 14 ("I feel refreshed and energetic when I wake up the next morning") was a particularly notable finding. This item showed no statistically significant difference between the lower (M=3.26) and higher

(M=3.19) procrastination groups, t(178) = .315, p = .753. This indicates that both groups, regardless of their level of bedtime procrastination, reported similar low levels of feeling refreshed in the morning. This finding suggests that high procrastinators are not in denial about the negative consequences of their behaviour; they are aware of poor sleep outcomes, yet this awareness does not translate into behavioural change.

DISCUSSION

Support of Original Hypotheses

The primary aim of this study was to develop and conduct a preliminary psychometric evaluation of a new scale for assessing sleep procrastination behaviour among Indian young adults, focusing specifically on item analysis and reliability. The results provide strong support for all three of the original hypotheses. First, consistent with H1, the scale demonstrated excellent internal consistency, with a Cronbach's alpha of .960. This value is comparable to, and even exceeds, the reliability coefficients reported for the original BPS (α = .88; Kroese et al., 2014) and its Korean (α = .86; An et al., 2019) and Spanish (α = .83; Brando-Garrido et al., 2021) adaptations. This high level of internal consistency indicates that the items on the scale reliably measure a unified underlying construct of sleep procrastination.

Second, supporting H2, a large and statistically significant difference was observed in total scale scores between the lower and higher procrastination groups. The mean total score for the high-procrastination group (M = 183.64) was nearly 80 points higher than that of the low-procrastination group (M = 105.58). This substantial separation validates the use of the total score as an effective indicator of an individual's level of bedtime procrastination and confirms the scale's ability to broadly discriminate between high and low procrastinators.

Third, and most importantly for this phase of scale construction, the item-wise analysis largely supported H3. The majority (37 out of 43) of the items were found to be statistically significant discriminators between the two groups. Items that performed best were those related to the core features of "revenge" bedtime procrastination: the deliberate delay of sleep to enjoy personal time, the use of digital devices and social media at bedtime, the conscious sacrifice of sleep for entertainment, and the subsequent experience of regret and fatigue. These findings strongly resonate with the conceptual definitions and qualitative descriptions provided in the literature (Kroese et al., 2014; Nauts et al., 2018; Magalhães et al., 2020) and extend them by providing empirical, item-level evidence from the Indian context.

Interpretation of Key Findings

The non-discriminating items, particularly the failure of Item 14, warrant specific interpretation. The fact that individuals in the high-procrastination group did not report feeling any less refreshed or energetic in the morning than those in the low-procrastination group is a critical insight. It suggests that the primary driver of bedtime procrastination is not a lack of awareness of its negative consequences. Instead, high procrastinators appear to be aware that they are sacrificing sleep quality but continue the behaviour because it serves an immediate psychological need. This interpretation aligns with self-regulation theory, which posits that procrastination arises from a conflict between an immediate, emotionally rewarding impulse (e.g., enjoying personal time on a phone) and a long-term goal (e.g., feeling well-rested) (Sirois et al., 2015). The immediate reward of reclaiming "me-time" appears to systematically override the well-understood future cost of fatigue.

These findings also align with the concept of "while-in-bed procrastination" (Magalhães et al., 2020). Many of the high-performing items, such as those regarding scrolling reels and using electronic devices in bed, capture behaviours that occur after the individual has already decided to go to sleep. This suggests that for Indian young adults, the problem is not merely getting into bed but disengaging from stimulating activities once there. The cultural context of India, with its high academic pressure and rapidly increasing digital consumption, likely exacerbates this. As noted by Jeon et al. (2021), cultural values, bedtime routines, and technological environments play a crucial role in shaping sleep behaviour, and the present study's findings provide empirical support for this in the Indian context.

Similarity of Results and Generalizability

The results of this study are highly consistent with the broader international literature on bedtime procrastination. The finding that digital engagement is a primary driver of sleep delay mirrors the results of Chung et al. (2019), who used time-use surveys to show that high procrastinators spend more time on screen-based leisure before bed. Similarly, the strong endorsement of items related to regret and feeling tired the next day aligns with the findings of Sirois et al. (2015) on the procrastination-health model, where stress and negative affect form a cyclical pattern with poor sleep.

However, the generalizability of the present findings is subject to certain limitations. The sample consisted exclusively of college-going young adults between 18

and 24 years of age, a developmental stage known as emerging adulthood, which is characterized by identity exploration and autonomy seeking. This demographic may be particularly vulnerable to bedtime procrastination. Therefore, the findings cannot be automatically generalized to adolescents, working adults, or older populations. Furthermore, the sample was drawn using convenience and purposive sampling methods, which may limit the representativeness of the findings. The participants were predominantly female (57.3%), and while this reflects the gender distribution in many psychology student populations, it may not fully represent the experiences of males or other genders. Cultural and regional variations within India itself (e.g., urban vs. rural, different linguistic groups) were not accounted for, and future research should aim for a more diverse and representative sample.

Implications

Despite these limitations, the present findings carry significant theoretical and practical implications. Theoretically, the study supports a multidimensional view of sleep procrastination, where cognitive, behavioural, and emotional components interact. The excellent performance of items related to autonomy reclaiming ("going to bed is rarely possible because the night feels personally free") provides strong empirical validation for the popular concept of "revenge bedtime procrastination." This suggests that the construct is more than just poor sleep hygiene; it is a complex phenomenon tied to individuals' perceived lack of control over their daytime hours.

Practically, the development of a valid and reliable scale has several important applications. First, this instrument can be used by mental health professionals and researchers to screen for and identify individuals at risk of chronic sleep deprivation due to bedtime procrastination. Second, it can serve as a valuable tool for evaluating the effectiveness of interventions designed to reduce this behaviour, such as self-regulation training or digital detox programs (Valshtein et al., 2019). Third, the specific item-level analysis provides actionable insights. For instance, the strong discriminative ability of items on digital media use suggests that interventions for Indian young adults should specifically target the management of smartphone and social media use during the pre-sleep window. The non-discriminative nature of Item 14 also implies that psychoeducation alone about the benefits of sleep may be insufficient; interventions must directly address the immediate emotional rewards of staying up late (Kadzikowska-Wrzosek, 2018).

In conclusion, this study successfully developed a psychometric scale for assessing sleep procrastination behaviour and provided strong preliminary evidence for its reliability and item-level discriminative validity. The instrument addresses a significant cultural gap in the literature and appears well-suited for use with Indian young adults. The findings illuminate that sleep procrastination is a robust construct in this population, driven by a potent combination of poor self-regulation, high digital engagement, and a conscious desire to reclaim personal autonomy from demanding daytime schedules.

REFERENCES

Airhihenbuwa, C. O., Iwelunmor, J. I., Ezepue, C. J., Williams, N. J., & Jean-Louis, G. (2016). I sleep, because we sleep: A synthesis on the role of culture in sleep behavior research. Sleep Medicine, 18, 13-18.

An, H., Chung, S. J., & Suh, S. (2019). Validation of the Korean Bedtime Procrastination Scale in Young Adults. Journal of Sleep Medicine, 16(1), 41-47.

Brando-Garrido, C., Montes-Hidalgo, J., Limonero, J. T., Gómez-Romero, M. J., & Tomás-Sábado, J. (2021). Spanish Version of the Bedtime Procrastination Scale: Cross-Cultural Adaptation and Psychometric Evaluation in a Sample of Nursing Students. Psychological Reports, 125(3), 1765-1779.

Chowdhury, A. I., Ghosh, S., Hasan, M. F., Siam, K. K. A., & Azad, F. (2020). Prevalence of insomnia among university students in South Asian Region: a systematic review of studies. Journal of Preventive Medicine and Hygiene, 61(4), E525-E529.

Chung, B. Y., Chung, S., & Lee, J. (2019). Relationships between bedtime procrastination and sleep behavior among university students. Sleep Medicine Research, 10(2), 64-71.

DeVellis, R. F. (2017). Scale development: Theory and applications (4th ed.). SAGE Publications.

Gupta, S., Bhardwaj, A., Nadda, A., Gill, A., Mittal, A., & Gupta, S. (2020). A comparative study of sleep quality in different phases of the medical course: A study from Haryana (North India). Journal of Family Medicine and Primary Care, 9(4), 2006-2010.

Jeon, M., Dimitriou, D., & Halstead, E. J. (2021). A Systematic Review on Cross-Cultural Comparative Studies of Sleep in Young Populations: The Roles of Cultural Factors. International Journal of Environmental Research and Public Health, 18(4), 2005.

Kadzikowska-Wrzosek, R. (2018). Self-regulation and bedtime procrastination: The role of self-regulation skills and chronotype. Personality and Individual Differences, 128, 10-15.

Kroese, F. M., De Ridder, D. T. D., Evers, C., & Adriaanse, M. A. (2014). Bedtime procrastination: introducing a new area of procrastination. Frontiers in Psychology, 5, 611.

Ma, X., Meng, D., Zhu, L., Guo, J., & Mu, L. (2020). Bedtime procrastination predicts the prevalence and severity of poor sleep quality of Chinese undergraduate students. Journal of American College Health, 70(4), 1104-1111.

Magalhães, P., Cruz, V., Teixeira, S., Fuentes, S., & Rosário, P. (2020). An Exploratory Study on Sleep Procrastination: Bedtime vs. While-in-Bed Procrastination. International Journal of Environmental Research and Public Health, 17(16), 5892.

Nauts, S., Kamphorst, B. A., Stut, W., De Ridder, D. T. D., & Anderson, J. H. (2018). The Explanations People Give for Going to Bed Late: A Qualitative Study of the Varieties of Bedtime Procrastination. Behavioral Sleep Medicine, 17(6), 753-762.

Przepiórka, A., Blachnio, A., & Siu, N. Y.-F. (2019). The relationships between self-efficacy, self-control, chronotype, procrastination and sleep problems in young adults. Chronobiology International, 36(8), 1025-1035.

Sirois, F. M., van Eerde, W., & Argiropoulou, M. I. (2015). Is procrastination related to sleep quality? Testing an application of the procrastination-health model. Cogent Psychology, 2(1), 1074776.

Valshtein, T. J., Oettingen, G., & Gollwitzer, P. M. (2019). Using mental contrasting with implementation intentions to reduce bedtime procrastination: two randomised trials. Psychology & Health, 35(3), 275-301.