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Perspective of System Integration: Research Status and Intervention Measures of Bedtime Procrastination.

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ABSTRACT

Bedtime procrastination has become a common phenomenon, but the dangers of Bedtime procrastination should not be underestimated. Current research in China have been pay attention in bedtime procrastination, but there are still some gaps. This study summarized present study on bedtime procrastination from the perspective of system integration, while conclude intervention pathways, which provided directions for future research and intervention measures.

KEYWORDS

Bedtime Procrastination; Sleep Quality; System Integration; Intervention.

1. INTRODUCTION

Nowadays, Bedtime procrastination has become a prevalent phenomenon, affecting the quality of sleep and the physical and mental health of residents. Consequently, an increasing number of scholars have begun to focus on this problem. Individual bedtime procrastination can straightly lead to sleep time delay, which resulting in insufficient sleep duration and a subsequent decline in sleep quality. The '2024 China Resident Sleep Health White Paper' points out that the average bedtime for residents is after midnight, with a total sleep duration of 6.75 hours, result in a significant decrease in overall sleep quality. Lower sleep quality directly impacts individuals' physical and mental health as well as their daily lives. Therefore, studying bedtime procrastination is vital significance. The study provides a perspective of system integration review of present research and available intervention approaches, which offer directions and intervention efforts to future research.

2. CONCEPT

In 2014, Kroese and her colleague proposed the concept of Bedtime Procrastination (BP) firstly, who defining BP as going to bed later than intended in the absence of external influences. They emphasized that it is essentially a form of procrastination, related to self-regulation and self-control. Meanwhile, they claimed that bedtime procrastination differs from typical procrastination behavior, which often involves delaying tasks out of aversion, whereas bedtime procrastination is usually associated with joyful tasks (Kroese et al., 2016).

Chinese scholars currently tend to follow the definition put forward by Kroese (2014), which has been translated into definitions such as Bedtime Procrastination (BP), Sleep procrastination (SP), Sleep Time Procrastination (STP) and Bedtime Delay (BD). Xu (2014) claimed that STP include different subtypes, which classify into active type and passive type. Active type of STP represent that individuals actively delay their bedtime. Passive type of STP illustrate that individuals are attracted

by other activities in their setting bedtime when they have the intention to go to bed on time, which forced them to delay their sleep time. Both active and passive types of STP can harm physical and psychological health of individuals.

3. PREVIOUS RESEARCH

3.1. Participant

3.1.1. College Student

Previous domestic research primarily focus on college students. College life differs significantly from high school life, with irregular daily schedules. When some college students have no class on the next day morning, they tend to delay their bedtime and compensate for lost sleep during the day to extend their total sleep time on previous night. This behavior further reinforces BP,which explain the high frequency of BP among college students. Some scholars have conducted research on medical students specifically. Compared with other college student, medical student undertake heavier academic workload and experience higher levels of depression and anxiety. Additionally, staying up late is more frequent among medical students than their counterparts at comprehensive universities. Therefore, medical students are suitable participant for academic research and intervention.

3.1.2. Adolescent

Compared with foreign research, domestic research on adolescents is lesser, and future research can further explored in this field. Most adolescents' sleep environments are at home.In accordance with their family members and family environment, which sorted out that parents' psychological control over adolescents will affect their BP (Deng et al., 2024). The growth environment of adolescents has a certain influence on decision-making. Based on life history strategies, individuals who grow up in unstable environments tend to be more inclined to choose immediate satisfaction and are more likely to exhibit Bedtime procrastination behavior. On the other hand, individuals who grow up in resource-rich and secure environments tend to consider long-term development more and tend to have more healthy sleep habits (Shao et al., 2024).

3.2. Measure

The Bedtime Procrastination Scale (BPS) compiled by Kroese et al(2016) or the Chinese version of BPS translated and revised by Ma et al(2021) are mainly used in the current research. The scale consists of 9 items and is scored on a Likert-5 scale, with 1 representing ‘almost never’ and 5 representing ‘almost alway’. Higher scores indicate more severe bedtime procrastination behavior. Both scales are mature and suitable for academic research.

3.3. Relevant Factors and Mechanisms

Previous research have found out many related factors and influencing factors of bedtime Procrastination. Based on the perspective of system integration, this paper elucidated from three aspects ,which include physiological, psychological and social.

3.3.1. Physiological Perspective

Procrastinating bedtime may adversely affect circadian rhythm regulation, overall sleep quality, and daytime alertness. It disturbs individuals’ regular sleeping routines and natural biological clock synchronization,which result in erratic sleeping patterns which are associated with health issues like hypertension or obesity (Geng et al., 2021). Furthermore, late-night activities reduce both total duration of restorative slumber as well as its qualitative aspects thereby contributing to heightened next-day tiredness. Studies indicate that those prone to bedtime procrastination often resort to screen-

based recreation exposing themselves to disruptive blue light emissions known for impeding melatonin production thus exacerbating insomnia-related challenges (Eugenia et al., 2014).

3.3.2. Psychological Perspective

In existing literature, numerous scholars have focused on studying the mechanisms of Bedtime procrastination and its related influencing factors. Fu and his colleague (2020) proposed the theory of temporal self-regulation of Bedtime procrastination, which posits that Bedtime procrastination primarily involves two stages: sleep intention generation and sleep intention conversion. In the stage of sleep intention generation, important factors determining the formation of sleep intention include sleep motivation and temporal value. In the stage of sleep intention conversion, an individual's past behavioral advantage and self-regulation ability can influence the conversion of sleep intention.

There is a significant positive correlation between pressure perception and Bedtime procrastination. When individuals experience high pressure perception, it may trigger negative emotions such as anxiety, tension, and fear. To alleviate these negative emotional impact when making decisions, people tend to choose to engage in immediate satisfaction through engaging in behaviors associated with sleeping procrastination rather than adhering to regular bedtime schedules (Xu, 2023).

Rumination has been found to be correlated with both procrastination behavior and overall quality of one's sleeping patterns (Wang & Lu, 2024). According to insomnia cognitive processing theory, rumination as a form of negative cognitive thought can lead individuals into higher levels of arousal which subsequently affects their cognitive processing during periods intended for restful slumber leading ultimately to instances where they delay falling asleep.

Anxiety and depression are directly predictive indicators for instances where individuals engage in delaying their own bedtime routines. The process theory behind disrupted sleeping patterns suggests that when an individual experiences heightened emotional states it leads neurons within their brain into overly excited states thus interfering with natural processes conducive towards achieving restful slumber resulting ultimately in delayed onset or prolonged duration before falling asleep (Li et al., 2019). Furthermore this pattern further reduces an individual's sense happiness potentially leading them towards experiencing depressive symptoms or increased feelings anxiety (Guo et al., 2020).

Bedtime procrastination has shown a negative correlation with self-regulation and self-control abilities according Kroese who believes that at its core it represents a form protracted postponement due poor personal control capabilities resulting from failed attempts at regulating oneself effectively. According limited self-control theories resources required for controlling one's behavior become depleted while attempting regulate emotional responses or cognition levels leaving insufficient resources available for exerting effective control over present actions (Ding et al., 2023). Additionally some scholars suggest that when individuals lack control over aspects daily life they seek enhance sense control by engaging compensatory behaviors such maladaptive coping strategies risky behaviors through retaliatory acts like prolonging time before retiring bed.

3.3.3. Society Perspective

In terms of life, sleep procrastination will affect individual energy by reducing sleep quality and sleep time, which affect further the efficiency of individual learning or work activities the next day.

4. INTERVENTION

4.1. Individual

Individuals can establish good habits, maintain a healthy schedule every day, moderate exercise or outdoor activities. Regular rest and rest can help individuals to be in a good mood, and proper exercise can help individuals release pressure and maintain a good mood.

4.2. Psychological Group Counseling

Future studies may try to combine psychological care with group counseling to intervene in sleep procrastination behavior. Some scholars use the method of psychological nursing combined with music to intervene to alleviate anxiety and sleep problems of college students (Xu, 2024). Through learning salon, psychological counseling, intermittent muscle relaxation training, music combined therapy and other ways to help individuals release pressure, relieve emotions, relieve sleep problems, and improve mental health.

4.3. Psychological Mindfulness

Mindfulness can significantly predict sleep procrastination negatively, and high levels of mindfulness can help individuals improve their self-control and self-regulation abilities, thus reducing sleep procrastination behaviors (Hu et al., 2023). However, current studies are lack of using mindfulness to intervene. In the future, we can try to intervene in bedtime procrastination through mindfulness, meditation and other ways.

4.4. Planned Behavior

Based on the theory of planned behavior, behavioral intention is the direct factor that determines behavior, and the degree of behavioral intention is determined by three factors, behavioral attitude, subjective norm and perceived behavioral control. Current study provided empirical evidence that have developed a clear action plan and found that it has some effect on procrastination behavior (Lin, 2017). As a kind of procrastination behavior, bedtime procrastination can also be considered for intervention based on planned behavior theory in the future.

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