

Running head: TIME MANAGEMENT, STRESS AND SLEEP QUALITY

The Relationship between Time Management, Perceived Stress,  
Sleep Quality and Academic Performance among University Students

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### Declaration

I declare that the work in this honours project is original except where indicated by special reference in the text.

Any views expressed in the honours project are those of the author and in no way represent those of the bachelor degree programme in Psychology, Hong Kong Baptist University.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

### Abstract

Poor time management, high levels of stress and poor sleep quality impose negative effects upon many university students. Especially, poor sleep quality impairs not only one's psychological health, but also physiological health. Therefore, it is important to find out the possible antecedences of poor sleep quality. While several studies illustrated significant correlations between time management, stress, sleep quality and academic performance. The present study aims to examine the relationship among these variables, and in order to find out the best predictor of sleep quality, this study adopted stepwise multiple regression to testify the relationship. The results indicated that time management and stress are significant predictors of sleep quality. Nonetheless, these three constructs were unrelated to academic performance. Implications for university students and practitioners are discussed.

## 撮要

研究指出惡劣的睡眠質素對大學生帶來嚴重的負面影響。因此，是次研究旨在找出時間管理，壓力，睡眠質素及學術成績的關係。結果顯示時間管理及壓力對睡眠質素有顯著的預測作用，但這些因素與學術成績無關。這意味著良好的時間及壓力管理能有效地改善睡眠質素。

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## CHAPTER ONE

### Introduction

In Hong Kong, many people try hard to use time efficiently in order to achieve as many accomplishments as possible. Good time management is essential for university students, whose schedule is often packed with activities and lessons. It is not only an effective strategy to utilize time but it also buffers stress (Misra & McKean, 2000) and relates to certain academic-related variables such as academic performance (Burt & Kemp, 1994) and college grades (Britton & Tesser, 1991).

Improper use of time can create stress. A survey study conducted by the University of Hong Kong (department of psychiatry) assessed the psychological status of 4000 undergraduate students from eight universities in Hong Kong. The results showed that half of the participants were suffering from various severities of anxiety, depression and psychological problems that were due to stress. Participants said that they were feeling stressful concerning their future career, study matter, examination and the use of time (關昭，2007).

On the other hand, stress has been found to be associated with sleep quality. A recent research found that people with sleep disturbances and daytime dysfunction are more likely to complain experiencing high level of stress. It was believed that

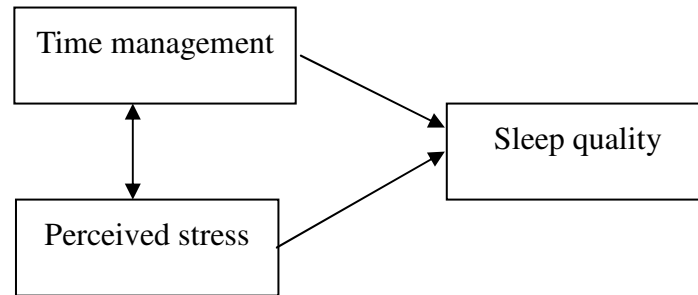
the interaction between stress and sleep plays a significant role in determining sleep quality (Theadom & Cropley, in press). Improper management of stress is correlated to poor sleep quality; meanwhile, poor sleep quality is related to several negative consequences.

Poor sleep quality leads to poor physical and psychological health.

Physiologically, poor sleep quality can lead to lower levels of personal health and higher levels of fatigue (Krenek, 2006) and it is linked to several diseases, for example cardiovascular disease (Jenkins, 2005). Psychologically, poor sleep quality can result in emotional instability, less self-assurance, more impulsiveness and recklessness (Jenkins, 2005) and it is linked to self-esteem problems (Jomeen & Martin, 2007).

As mentioned above, time management, stress and sleep quality are inter-correlated and each of them may result in destructive effects. It is important to find out the possible antecedence in order to prevent and tackle with the problem. It has been found that efficient time management reduces stress (Misra & McKean, 2000) and stress affects sleep quality (Fortunato & Harsh, 2006). To go one step further, the present study aims to testify whether combined effect of poor time management and high perceived stress are the antecedence of poor sleep quality (see Figure 1) by studying if time management and perceived stress predict sleep quality

via multiple regression.



*Figure 1.* The proposed relationship between time management disposition, perceived stress and sleep quality.

Since there is no published study on the relations between time management, perceived stress and sleep quality in Hong Kong, it is important to explore whether or not there exists relationships among these factors and how the predictive power of these relationships. It helps practitioners and university students to prevent harmful effects caused by poor time management, high levels of stress and poor sleep quality. The findings of the present study possibly help practitioners to design and provide appropriate intervention programs such as how to manage one's time for sleeping. Moreover, it is important for university students to be aware of the connection and thus start managing one's time use. Accordingly, the present study aims to use correlation and multiple regression to examine the above relationship and to find out the relationship among time management, stress and sleep quality with university students in Hong Kong.

## CHAPTER TWO

### Literature Review

#### *Time Management*

As mentioned in the introduction, time management is essential for everybody, especially for university students. But what is time management? Although there is no mutual agreement on the concept of time management, different scholars shared similar ideas about this concept. The concept was introduced in the 1950s (Claessens, Van-Eerde, Rutte, & Roe, 2007). McCay (1959) wrote a book, *The Management of Time*, which highlighted the essential elements of time management: being self-reflective and changing time expenditure of time-consuming behaviors and increasing efficiency by making a daily plan such as prioritizing tasks. In other words, the concept of time management is defined in terms of the techniques or skills that are deemed to aid productivity and efficiency.

There are three major models of time management: The Britton and Glynn's (1989), Macan's (1994) and Huang and Zhan's (2001) model of time management.

Britton and Glynn (1989) conceptualized time management in terms of three components: macro, intermediate and micro levels. The macro level refers to choice and goals prioritizing. The intermediate level involves creating tasks from the goals and sub-goals, while the micro level consists of planning and implementing. Based

on this three components of time management, Britton and Glynn (1989) developed a measure namely Time Management Questionnaire (TMQ) to assess time management practices with three factors which are consistent with the three components of time management proposed by Britton and Glynn (1989).

Macan's (1994) model of time management consists of four components, which are perceived control of time, setting goals and priorities, mechanics of time management and preference of organization. Setting goals and priorities is equivalent to short-range planning (Britton & Tesser, 1991). It refers to how a person plans tasks, prioritizes jobs and sets sub-goals to achieve a final goal. Mechanics of time management are behaviors about planning and scheduling time. Preference of organization assesses the preference for organization in one's workspace, for instance, maintaining a clear working desk. In the model, it has been proposed that perceived control of time act as a mediator to mediate three other dimensions of time management behavior. To capture these components of time management, Macan's (1994) constructed a scale, Time Management Behavior scale (TMB).

Huang and Zhan (2001) defined the concept of time management as a kind of personality trait that can be reflected from the way individuals utilize and control ones' time. To reveal this kind of personality trait and based on Britton and Glynn's (1989) and Macan's (1994) models of time management, Huang and Zhan compiled

a questionnaire, namely Time Management Disposition Inventory (TMDI; 2001). By both exploratory and confirmatory factor analysis, they confirmed that this kind of personality trait consists of a three-dimension and multi-level mental structure. The three dimensions of time management disposition were, first, the sense of time value, which includes two levels: social-oriented time value and individual-oriented time value. The second-dimension, the sense of time control consists of setting goals, planning, priorities, time allocation, and feedback. The third dimension, the sense of time efficacy contains two levels: efficacy of time management and efficacy of time management behaviors. Moreover, based on both exploratory and confirmatory factor analyses, Huang and Zhan (2001) claimed that components of TMDI tallied with other well established measurements of time management. For instance, the sense of time value fits in with macro and micro appeared in TMQ (Britton and Glynn, 1989). Components of the sense of time control of time management disposition corresponds to the mechanics of time management of TMB (Macan, 1994) and the sense of time efficacy is consistent with time value of TMQ (Britton and Glynn, 1989).

Apart from these different definitions of time management, the relationship between time management and academic-related variables has been investigated. Time management has been shown to be related to college grades (Britton & Tesser,

1991), academic performance (Burt & Kemp, 1994), and study habits (Bond & Feather, 1988). Moreover, a study showed that students perceived poor time management as a reason of examination failure (Ling, Heffernan, & Muncer, 2003). Founded on these studies, the present study assumed that higher the score in time management disposition (efficiency in time management) for students, better their study habits, and therefore better their academic performance. The first hypothesis, based on this assumption, is that time management disposition is positively correlated with students' academic achievement, which is measured by the range of participants' current cumulative grade point average (cGPA) in this study.

### *Stress*

Not only the matter of time management bothers university students, but also the stress created during the academic years. During university life, students experienced many challenges, which demand changes and adjustments from them, which create stress in turn. Stress, referring to New Oxford American Dictionary (2005, p.251), is defined as “pressure or tension exerted on a material object” and “a state of mental or emotional strain or tension resulting from adverse or very demanding circumstances”. At the same time, according to Aldwin (2007), stress refers to the “quality of experience, produced through a person-environment transaction, that, through either overarousal or underarousal, results in psychological



or physiological distress” (p. 24). While the word distress seems to describe only something negative, Selye (1950, as cited in Butcher, Hooley, & Mineka, 2004), who firstly brought the term stress (Appley, 1967, p.1), suggested that stress can be both positive (eustress) and negative (distress) force in our lives. Instead of depicting stress negatively, according to a more neutral description by Myers (2004), stress is a subjective feeling or response towards certain stressful events (stressors), which can be perceived as either threatening or challenging.

After a quick look at the definitions of stress, the following part stated the historical origin of stress, ranging from the role of emotion and cognition to stress, physiological and psychological stresses. Lange and James (1922) explained the role of emotion and cognition in reactions to stress. The James-Lange hypothesis (Lange & James, 1922) stated that the body (visceral) reaction, specifically autonomic nervous system activation, such as sweating, comes first and, the emotion, such as feeling stressful, afraid and fear, comes afterward. However, Cannon (1929) argued that the fact should be opposed to Lange and James’s view because compared to the perception of and reaction to stress, viscera’ reaction is much slower. Thus, Cannon (1929) asserted that mental processing must come first. In fact, Cannon’s lesion study (1929) supported his argument in which spinal cord of dogs was cut off and therefore no sensations could reach the dog’s brain from the viscera. If the

perception of visceral responses is prior to emotion, the dogs should no longer show emotion. However, the dogs with lesion of spinal cords still showed emotions of anger, fear, and pleasure, which challenged the James-Lange theory.

After Cannon's challenge on James-Lange theory, he developed the fight-flight theory (Cannon, 1929). The theory stated that when someone is under challenging situation such as hunger, loss of blood and emotional arousal, his or her adrenal medulla releases epinephrine (adrenaline) and norepinephrine (noradrenaline) which arouse sympathetic nervous system. He named this kind of arousal as fight-flight reaction. He believed that any threat or stress resulted in the fight-flight reaction, and both mental and physical resources are reserved more quickly, comprehensively and effectively coping with challenges. Another concept "homeostasis" is also established by Cannon and closely relates to the fight-flight response, in which homeostasis or later called stress homeostasis refers to the ability to remain organic static or stability or staying power of the body (as cited in Selye, 1976).

After the debate between James and Cannon, correspondently a recent debate between Lazarus (1982, as cited in Lazarus, 1999) and Zajonc (1984, as cited in Aldwin, 2007) is similarly discussing on stress, but they are more concerned with whether cognitive or emotional reaction comes first. In Lazarus's view, the

perception of stress and ones' emotional reaction is determined by how the individuals appraise the situation (Lazarus's notion of stress is considered as a psychological stress, therefore it will be further expanded under the part of psychological stress later). On the contrary, differs from Lazarus, Zajonc believed that first emotions, then cognition. The debate pivots on different definitions of emotion and cognition. For Lazarus, cognition is close to general awareness, whereas for Zajonc, it refers to logical, deliberately and conscious thinking. In fact, the term cognition can be defined in both manners depending on occasions. Therefore, in Lazarus's later work (e.g. 1999), he mentioned that whether the appraisal process is conscious or unconscious, rational or irrational, individuals must be aware of a problem before one starts to react to it.

After scholars debated on their view on the role of emotion and cognition to stress, Selye (1956; 1976), by expanding Cannon's (1939, as cited in Aldwin, 2007; Albrecht, 1986) fight-flight theory, introduced the physiological stress and typed it as eustress (positive stress) and distress (negative stress). He brought forth three phases in reaction to stress or the stress syndrome, namely general adaptation syndrome (GAS). Phase one, the Alarm Reaction, is similar to Cannon's fight-flight reaction in which stress occurs and one's sympathetic nervous system activates the reserved resources. Different from Cannon's theory, Selye additionally took the

adrenal glands and the hypothalamic-pituitary axis into account for explaining stress response. In phase two or Resistance, alike physiological homeostatic by Cannon, one copes with the stressor. If prolonged, reserves depleted during Phase three, Exhaustion. With exhaustion, one is more vulnerable to illness or eventually collapse and die.

After addressing the ancient findings of physiological stress, let us have some recent findings about psychological stress. The psychological stress is proposed by Lazarus, Kanner and Folkman (1980, as cited in Breznitz & Goldberger, 1993). They suggested stress as an aspect of emotion and believed that psychological stress centres on the negative emotions (such as anger, fright, anxiety, shame, guilt, sadness, envy, disgust and jealousy). Referring to Lazarus and Folkman's (1984, as cited in Lazarus, 1999) theory of stress and coping, it stated that appraisal is mediating between stressor and coping. For instance, at first someone identifies a stressor. He or she will immediately pop up a subjective definition of events (Lazarus termed it as appraisal). He or she will appraise the stressor as harm, threat or challenge and then cope accordingly. If someone appraises the stressor as threat, one may feel fearful, afraid and may try to run away. On the other hand, if one appraises the same stressor as challenge, one may feel excited and may even approach it. This is an example to show why there are individual differences in

reaction to common stressors by the theory of stress and coping (Breznitz & Goldberger, 1993).

Stress is characterized as one's appraisal of events and there are two kinds of appraisals. Lazarus (1999) stated that every event of our life run through a psychological filter. Perceived stress (distress) arises when one perceived resources are fewer than perceived demands and appraise the event as threat rather than challenge. For instance, if students perceive exam as threat, then they will response as fear and panic. On the other hand, if they perceived it as challenge, then they will be aroused and focused. In fact, there are two kinds of appraisals: primary and secondary appraisals. Primary appraisal refers to an appraising process that concerns about whether the stimulus or event is harm (damaged already), threat (to be damaged or possibly harm for them in the coming future) or challenge (benefiting, opportunity for personal growth and gain and so on). Secondary appraisal is a process of thinking of the further action which concerns what to do and how to cope with the stressor. By evaluating the coping options, one decides what to do next (Lazarus, 1999). Furthermore, Lazarus (1999) emphasized that these two distinguishing appraisals cannot be separated by time but should be differentiated by its content.

Stress is connected to college students. For example, students who

experienced higher levels of stress, at the same time, reported lower satisfaction with life (Demakis & McAdams, 1994). Moreover, stress is negatively correlated to perceived problem solving, health (Largo-Wight, Peterson, & Chen, 2005), self-efficacy and academic success (Zajacova, Lynch, & Espenshade, 2005) among college students. In other words, students will have better health, problem solving, self-efficacy and academic success, if they have lower levels of perceived stress (a kind of subjective psychological distress). The second hypothesis, perceived stress is negatively correlated with academic success. Furthermore, to measure participants' perceived stress, this study adopted Lazarus's notion of psychological stress which concerns with how a person appraisal or perceived one's stressor (only focused on the perceived distress, the negative stress). Therefore, perceived stress scale is used.

### *Sleep Quality*

Perceived stress is related to poor academic results; at the same time, possessing a bad sleep quality is also correlated with poor academic performance. Possessing a good sleep quality is vital for university students to learn during the study process. However, many studies have shown hordes of students having sleep problems. Survey studies carried in Hong Kong have suggested that as high as 80 percent of participants are having sleep problems (徐英賢及蕭敏康, 2005; 張靜雲, 2001). Moreover, it has been demonstrated that higher the level of education

students received and higher the chance of sleep problem happened (張靜雲, 2001).

Sleep quality, according to American Psychiatric Association (2000), is defined as a complex phenomenon that involves several dimensions. Sleep quality includes perceived sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction. Those dimensions are covered by Pittsburgh Sleep Quality Index (PSQI), which is used in the present study. On the other hand, Lai (2001) mentioned that sleep quality is determined by how one perceives his or her nighttime sleep patterns such as depth of sleep, ability to stay asleep, and easier to fall asleep without medical aids. Good sleep quality is the occasion of “feeling rested in the morning, feeling energetic all over the day, and not complaining of any sleep disturbances” (p.4). In other words, possessing good sleep quality is essential and vital for everybody’s healthy living.

Everyone needs good sleep quality, since poor sleep quality relates to numerous negative consequences concerning physical and psychological health-related problems (Jenkins, 2005; Jomeen & Martin, 2007; Krennek, 2006; Lam, 2003; Miller, 2007). Physiologically, poor sleep quality can cause daytime sleepiness (Miller, 2007), lower levels of personal health and higher levels of fatigue (Krennek, 2006). Besides, it is linked to several diseases such as heart disease, inflammation, diabetes (Sleep problems, heart disease often in bed together, 2007)

and cardiovascular disease (Jenkins, 2005).

Psychologically, poor sleep quality result in decreases in cognitive function (Miller, 2007). Furthermore, it is related to higher levels of anxiety (Jomeen & Martin, 2007), increase tension, irritability, confusion, negative moods and depression, decrease psychological well-being and lower life satisfaction (Lam, 2003; Pilcher, Ginter, & Sadowsky, 1997). Simultaneously, it is positively related to chronic psychomotor slowing and concentration problems (Buboltz Jr, Brown, & Soper, 2001).

Aside from the physical and psychological problems bringing forth by poor sleep quality, research has shown that it also relates to poor academic achievement. Poor sleep quality associated with lower academic motivation, lower grades and incompleteness of courses (Pilcher, Ginter, & Sadowsky, 1997). Moreover, lower academic motivation is a key predictor of lower academic performance. In the present study, it is supposed that poor sleep quality acts as an antecedence to lower students' academic motivation and lack of academic motivation leads to poor their academic performance. By logical deduction, hypothetical syllogism, sleep quality should be negatively correlated with academic attainment, as reflected in one's current range of cGPA (the third hypothesis of this study).

*The Relationship between Time Management and Stress*



A local survey research pointed out that time management is one of top-ten stressors to young adults (Mok, 2004) and in fact, it has been revealed that components of time management behavior are linked to stress-related outcomes.

Perceived control of time is related to stress-related outcomes, such as grade point average (Britton & Tesser, 1991). Time management behavior negatively related to job-induced and somatic tension, which mediated by perceived control of time (Claessens, Van Eerde, Rutte, & Roe, 2007). Perceived control of time is in a similar way to time management disposition. Therefore, time management should also relate to job-induced and somatic tension. Besides, not only perceived control of time contributes to lessen stress but also setting goals and priorities and mechanics of time management. Claessens et al. (2007) have found that setting goals and priorities lead to more control and therefore less strain, more satisfaction and feeling more productive. Additionally, mechanics of time management is negatively related to self-punishment behavior (Griffiths, 2003). It may deem to increase distress. Since Huang and Zhan's (2001) Time Management Disposition Inventory is constructed basing on Britton and Glynn's (1989) and Macan's (1994) models of time management, the results of Britton and Glynn's (1989) and Macan's (1994) should be equivalent to Huang and Zhan's (2001) Time Management Disposition Inventory. The fourth hypothesis, time management disposition is a negative

predictor of stress.

### *The Relationship between Stress and Sleep Quality*

Several studies have been found out that work-related stress influences sleep quality (Fortunato & Harsh, 2006; Wheatley, 1998). But is it the same for university students by measuring their perceived stress? Actually, Clemens, Hoover and Kosydor (2005) using subjective tests, which are the Pittsburgh Sleep Quality Index and the Perceived Stress Scale, found a negatively corrected relationship between stress and sleep quality in university population. However, by using objective test, Clemens, Hoover and Kosydor (2005) found that participants with high level or low level of stress contributed only a little difference in sleep quality which suggests that the contradictory results may be due to the small sample size.

Besides, a study has been showed that stress management, by teaching acupuncture therapy, can significantly improve sleep quality for HIV-infected participants (Phillips & Skelton, 2001). Believing that well in stress management is the antecedence of good sleep quality. Moreover, Theadom and Cropley (in press) found that participant with high perceived stress correlated to higher sleep disturbances and daytime dysfunction. They believed that perceived stress and sleep interact and it plays a significant role in sleep quality.

However those studies were adopting correlation as statistic inference. To

contribute the predictive power and to provide the  $R^2$  value of the data, the present study adopted the regression analyses. The fifth hypothesis, perceived stress is a positive predictor of poor sleep quality.

### *The Relationship between Time Management and Sleep Quality*

Change of sleep pattern as students enter university. During secondary school, students have regular school schedule that lead to more stable sleep pattern. When students enter university, many things change including the school and sleeping schedule. Compared with people in other age group and other work conditions, college students seem to have more freedom to plan their time for activity and sleep. Nevertheless most college students cannot get enough sleep or having irregular sleep schedules (Tsai & Li, 2004). It reflects a bad time management possessed by university students. Additionally, Cheung (2003) found that odd sleep schedule will result in poor sleep quality and Lam (2003) also found that inconsistent sleep schedules of college students were correlated with poor sleep quality.

There are indirect and direct linkages between time management and sleep quality. Adam, Snell and Pendry (2007) showed that time management is related to inconsistent sleep schedules. Inconsistent sleep schedules brought about poor sleep quality (Cheung, 2003). This revealed an oblique connection between time management and sleep quality and inconsistent sleep schedules as a mediator in

indirectly linking up time management and sleep quality. It was confirmed by a study which showed a direct linkage (correlation) between time management and sleep quality in Mainland China population (Huang, 2007). The sixth hypothesis, poor time management can predict poor sleep quality also in Hong Kong university population.

Additionally, it is believed that combined effect should have greater force than single force in influencing an object or event. Derived from literature, perceived stress is significantly positively correlated to sleep disturbances; and time management correlated with sleep quality. This study further investigated whether combined effect can as the best predictor of sleep quality (by stepwise multiple regression). The last hypothesis, in comparing to separated effects, combined effect of time management and perceived stress is better on predicting sleep quality which reflected in the effect size ( $R^2$ ) of regression.

In sum, by reviewing the literature and previous findings, seven hypotheses came up in the present study: hypothesis one, time management disposition is positively correlated with students' academic achievement; hypothesis two, perceived stress is negatively correlated with academic success; hypothesis three, sleep quality negatively correlated with academic attainment; hypothesis four, time management disposition is a negative predictor of stress; hypothesis five, perceived

stress is a positive predictor of poor sleep quality; hypothesis six, poor time management predicts poor sleep quality; hypothesis seven, compare to separated effects, combined effect of time management and perceived stress is better on predicting sleep quality which reflected in the effect size ( $R^2$ ). In the following chapter, method, it detailed how the study testified these hypotheses.

## CHAPTER THREE

### Method

#### *Participants*

By convenience and snowball sampling, a total of 109 full-time undergraduate and associate psychology students from Hong Kong Baptist University and Hong Kong Baptist University (College of International Education) involved in the present study. Fifty two (47.7%) and 36 out of 109 (33%) were year three and year two undergraduate psychology students from Hong Kong Baptist University respectively while the remaining 21 of them (19.3%) were associate degree psychology students from Hong Kong Baptist University (College of International Education). The participants were ranged from 19 to 27 years old. The majority of participants were 22 years old (32.7%) and 23 years old (26.6%). The mean age was 22.76 ( $SD = 1.38$ ) years old. Fifty eight (53.2%) of them were female whilst 50 (45.9%) of them were male and one's gender was missing (approximately 1%). Forty two (38.5%) and 23 (21.1%) out of 109 participants achieved cGPA of 2.50 to 2.99 and 3.00 to 3.39 respectively.

#### *Procedure*

First of all, informed consent (see Appendix 1) and approval from the University Institutional Review Board were obtained before the data collection. In

addition to the collection of data, consent forms and data were kept strictly confidential and anonymous to protect the participants from social harm.

Data were firstly collected by convenience sampling in which subjects were selected when they were available. Questionnaires were distributed during class sessions and break time. Eighty three participants returned back the completed questionnaires. On the other hand, the remaining participants were invited to join this study by snowball sampling which participants were asked to recommend other people who were full-time psychology bachelor or associate degree students and who were studying in Hong Kong Baptist University or Hong Kong Baptist University (College of International Education) to join the study.

In this study, participants were asked to complete three sets of questionnaires. To ensure participants' understanding of those questions, Chinese versions of Time Management Disposition Inventory, Pittsburgh Sleep Quality Index and Perceived Stress Scale were used. Approximately 170 questionnaires were distributed to full-time psychology undergraduate or associate students from Hong Kong Baptist University or Hong Kong Baptist University (College of International Education). One hundred and ten questionnaires were returned, leading to a response rate of 65%. Moreover, Stevens (1966, as cited in Giles, 2002) recommended the minimum numbers of participant having in a study for running multiple regression were 15

cases for each predictor. The present study involved three predictors, which means that at least 45 cases were required for this study, and this criterion was met.

After data collection, data were coded and entered into a statistics software, Statistical Package for the Social Sciences (SPSS) version 15.0. By SPSS, relevance statistics, descriptive statistics, correlation, linear regression and multiple regression, were performed to analyze the data. In addition, a 95% confident interval was used for all tests.

### *Measurements*

The measurements included in the present study that were Time Management Disposition Inventory, Perceived Stress Scale, Pittsburgh Sleep Quality Index and academic performance.

*Time management.* Time Management Disposition Inventory (TMDI; Huang & Zhan, 2001) was employed in the present study. TMDI assesses time management in three domains, namely the sense of time value (it includes social-oriented time value and individual-oriented time value), the sense of time control (it includes setting goals, planning, priorities, time allocation, and feedback) and the sense of time efficacy (it includes efficacy of time management and efficacy of time management behaviors). Participants were asked to respond a five-point Likert scale (1 = do not agree at all to 5 = completely agree). Cronbach's alpha for TMDI



was .61 to .85 and test-retest reliability was .71 to .81, which indicated that the measure is medium to highly reliable. Furthermore, the internal consistency of TMDI was .68 and it tallied well with TMB (Macan, 1994) and TMQ (Britton and Glynn, 1989), suggesting that TMDI possessed both internal and concurrent validity.

*Perceived stress.* Perceived Stress Scale (PSS; Cohen, Kamarch, & Mermelstein, 1983) is standardized and widely used to assess stress in college student population. It used a 5-point Likert scale (0 = never and 4 = very often) to indicate one's lives uncontrollable, unpredictable and overloading in the past month. The PSS was proved valid and reliable. Cohen, Kamarch and Mermelstein (1983) illustrated the concurrent validity of PSS. PSS was significantly correlated with Life-Event Score and depressive symptomatology in two college student samples ( $N = 332$  and  $114$ ). In the same student samples, the Cronbach alphas of 14-item PSS were .84 and .85. Furthermore, in general population, the internal consistency of PSS was .75 (American Psychiatric Association, 2000).

*Sleep quality.* The present study employed the Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) to assess sleep quality during previous month. PSQI is standardized and widely used to assess subjective sleep quality. It was developed to discriminate between good and poor sleeper (Ferris, Williams, Shen, O'Keefe, & Hale, 2005). It is a self-administrated

questionnaire which consists of seven domains: perceived sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction. Added up scores of these seven domains is the global score. PSQI uses three-point Likert scale for each of the 7 areas, with a global score ranging from 0-21. Higher global PSQI score reflects poorer sleep quality while lower score implies better sleep quality (Ferris, et al., 2005). The PSQI was proved reliable. The internal consistency was 0.83 and test-retest reliability was 0.85 ( $p < 0.001$ ) (Devine, Hakim, & Green, 2005).

*Academic performance.* For measuring participants' academic performance, in order to avoid missing data, participants were only required to report the range of cumulative grade point average (cGPA) instead of the specific number. According to the range of cGPA, academic performance was classified as five class honours (fail = below 2.00, pass = 2.00 to 2.19, third-class class of honours = 2.20 to 2.49, second-lower class of honours = 2.50 to 2.99, second-upper class of honours = 3.00 to 3.39 and first class of honours = 3.40 to 4.00). Moreover, in order to get interval, scale or dummy variables for running regression analysis (Leech, Barrett, & Morgan, 2005), participants' class of honours is converted to dummy variables with yes coded as 1 and no coded as 0. For instance, participants with first class of honours were coded as 1. If not, those were coded as 0.

## CHAPTER FOUR

### Results

The present study adopted descriptive statistics, Pearson, Kendall's tau-b and Spearman correlation, Mann-Whitney U test, and regression to examine the relationship among time management, stress, sleep quality and academic performance among university students in Hong Kong. The results section divided into five parts: results of the reliability and validity tests of each measurement, descriptive statistics, exploratory data analyses, data screening, and hypotheses testing.

#### *The Reliability and Validity of Measurements*

Similar to the findings from the pervious studies, TMDI, PSS and PQSI were shown highly reliable and valid. Table 1 presented the comparison between the past and the present study's findings on the Cronbach's alpha for each measurement.

Table 1

#### *Comparison between the Results of Past and Present Study Results on the*

#### *Cronbach's Alpha for Each Measurement*

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	$\alpha$ from the past study	$\alpha$ in the present study
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For TMDI	.61 to .85	.62 to .89
For PSS	.84 to .85	.83
For PQSI	.83	.84

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*Note.*  $\alpha$  = Cronbach's Alpha.

The Cronbach's alpha for TMDI, PSS and PQSI were .89, .83 and .84 respectively in this study, indicating that the data are highly reliable (Cohen, 1988). Moreover, Cronbach's alphas for each sub-constructs of TMDI, namely the sense of time value, the sense of time control, and the sense of time efficacy, were .89, .89 and .79 respectively, which showed that TMDI possesses the convergent validity of each sub-constructs (when items/questions correlate well with each other and these items/questions are believed to measure the same construct, the convergent validity is obtained). On the other hand, the Cronbach's alpha for three sub-constructs as a whole of TMDI was only .62, which demonstrated the discriminant evidence, or also known as divergent validity (unrelated sub-constructs having low correlations with each other within an inventory or test is said to have divergent validity), for three sub-constructs of TMDI.

### *The Descriptive Statistics*

Descriptive statistics for TMDI, PSS and PQSI were presented in Table 2,

which included measures of central tendency (means, medians and modes) and measures of variability (range and standard deviations) for all the variables in this study.

Table 2

*The Descriptive Statistics for TMDI, PSS and PQSI*

	<i>M</i>	Median	Mode	Range	<i>SD</i>
TM	99.95	101	97	82	16.33
PSS	19.50	19	18	29	5.67
PQSI	5.11	5	5	15	2.83

*Note.* *SD* = standard deviation; *M* = mean.

Furthermore, correlations among variables were performed. Firstly, Table 3 showed the correlations between TMDI, PSS and PQSI (for the total scores of each scale as well as its sub-scales). The results illustrated that TMDI was significantly negatively correlated with PSS ( $r = -.21, p = .03$ ) and PQSI ( $r = -.25, p = .01$ ). Besides, PSS was also significantly positively correlated with PQSI ( $r = .43, p = .00$ ).

Table 3

*Intercorrelations for Total Scores and Sub-scales of TMDI, PSS and PQSI*

	PSS	TMDI	Time Control	Time Value	Time Efficacy
PSS		-.21*	-.26**	.17	-.37**
PQSI	.43**	-.25*	-.26**	.01	-.27**
Perceived Sleep Quality	.34**	-.32**	-.13	.06	-.09
Sleep Latency	.20*	-.16	-.08	-.15	-.20*
Sleep Duration	.04	-.10	-.12	-.04	-.02
Sleep Efficiency	.03	-.12	-.08	.00	-.10
Sleep Disturbance	.52**	-.10	-.14	.18	-.21*
Use of Sleep Medication	.11	-.06	.04	.02	.09
Daytime Dysfunction	.44**	-.32**	-.35**	.04	-.39**

*Note.* Time Control = the sense of time control; Time Value = the sense of time value; Time Efficacy = the sense of time efficacy.

\* $p < .05$ , \*\* $p < .01$ . Indicating variables were significantly correlated with each other.

Secondly, Table 4 depicted the Spearman correlations among demographics, TMDI, PSS and PQSI. No significant correlation was found, even the relationship

between TMDI, PSS, PQSI and academic performance.

Table 4

*Correlations for Demographics, TMDI, PSS and PQSI*

	TMDI	PSS	PQSI
Age	.04	.09	.05
Year of study	.09	.12	.06
Academic performance	-.11	-.03	-.01

*Exploratory Data Analyses*

This section explored whether there is gender difference on academic performance, and the relationship between age, year of study and academic performance. Since participants were asked to rank their current cGPA as first honours, second upper and etc (ordered from first honours to pass degree), therefore this study viewed these sorts of data as ordinal data. First of all, to compare the gender difference on academic performance, Mann-Whitney U test was used.

Mann-Whitney U test is used to deal with data, particularly dependent variables that are not normally distributed (such as ordinal data) and the samples are independent (Morgan, 2007), similar to independent sample *t*-test. By contrast, *t*-tests only deal

with dependent variables that are classified as interval/scale data. The results showed that there is no significant gender difference on participants' academic performance,  $U = 1277$ ,  $p = .43$ , while the average ranks of females and males were of 55.60 and 51.06 respectively.

To explore the relationship between age and academic performance, and between year of study and academic performance, Kendall's tau-b correlation analysis was used (as this test is used to find out the relationship between two or more ordinal data). The results depicted a significant negative relationship between age and academic performance,  $\text{tau}(105) = -.20$ ,  $p = .038$ , showing that older the students, lower their range of cGPA. The effect size was smaller than typical ( $\text{tau-b} = -.20$ ), according to Cohen (1988). On the other hand, there is no significant relationship between year of study and academic performance,  $\text{tau}(106) = -.01$ ,  $p = .919$ .

### *Data Screening*

Before running any inferential statistics, certain amounts of data screening should be performed. Violations of multicollinearity and outliers should be handled before carrying out multiple regression analysis (Giles, 2002). This section described the procedures of coping with these violations. First of all, multicollinearity is that if two predictors (or explanatory variables or X) are highly



correlated ( $r = .90$  or above) with each other, suggesting that they explain exactly the same variance in the criterion (or dependent variable or  $Y$ ). Thus, multicollinearity should be avoided. In the present study, the correlations among two predictors: time management disposition and perceived stress, were low. The correlation between these two predictors was only  $-.25$  (see Table 3). Therefore, predictors did not commit the problem of multicollinearity.

Secondly, regression is sensitive to outliers. Therefore, this study adopted Cook's distance to check how much an outlier is influencing the present analysis. A value higher or equal to one reflects high influence. The results showed that the minimum, maximum and mean values of Cook's distance were far lower than one, and they were 0.02, 0.19 and 0.06 respectively, with a standard deviation of 0.03. In other words, the results displayed that outliers only imposed a very slight influence on the analysis. Furthermore, by casewise diagnostics (which pointed out the particular cases that are exceptionally outliers), a standardized residual of 3.02 and 3.96 for case 60 and 84 were identified respectively, indicating that these two cases were particularly problematic to the multiple regression analysis. Accordingly these two cases were deleted.

### *Hypotheses Testing*

The present study aimed to examine the relationship between time management,

perceived stress, sleep quality and academic performance among university students.

Since, there were no significant correlations between academic performance and TMDI, or between academic performance and PSS or between academic performance and PQSI (see Table 4), hypotheses one to three were rejected.

Simple regression analyses were used to testify hypotheses four to six. The results, for hypothesis four, pointed out that time management disposition was a significant negative predictor of perceived stress,  $F(1, 101) = 4.93, p = .029$ . The equation for this relationship was  $\text{perceived stress} = 26.87 + -0.08 * \text{score of time management disposition}$ . The standardized beta coefficient and adjusted  $R^2$  value were  $-.22$  and  $.05$  respectively. This indicated a minor relationship between these two variables and that time management disposition accounted for only 5% of the variance in perceived stress, which is a small effect comparing to typical effect size according to Cohen (1988). Hypothesis four was accepted. To conclude, higher the level of time management disposition the participant scored (more efficient time management), the lower the level of perceived stress was recorded from participant (perceived less stress).

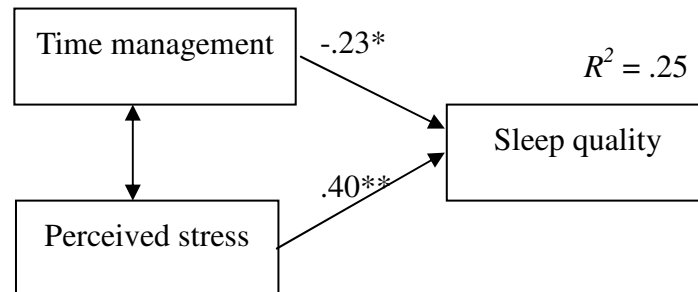
In addition, the results of regression analysis supported hypothesis five (perceived stress is a positive predictor of sleep quality). Perceived stress was a significant positive predictor of sleep quality scores ( $b = .44, p = .000, R^2 = .20$ ),

which explained for 20% of the variance in sleep quality by perceived stress. In other words, higher the stress, poorer the sleep quality.

For hypothesis six (time management predicts sleep quality), the simple linear regression analysis showed that time management disposition was a significant negative predictor of poor sleep quality scores ( $b = -.23$ ,  $p = .001$ ,  $R^2 = .10$ ), accounting for 10% of the variance in sleep quality by time management disposition. The null hypothesis was rejected. It revealed that poorer the time management disposition the participants were, poorer the sleep quality the participants experienced.

Additionally, in order to find out the best predictor of sleep quality, stepwise multiple regression was used to investigate whether separated or combined effect of time management and stress is better to predict sleep quality for testing hypothesis seven. The results showed that the combined effect of time management and perceived stress on predicting sleep quality was statistically significant,  $F(1, 100) = 16.67$ ,  $p = .000$ . Both time management disposition ( $b = -.23$ ,  $p = .011$ ) and the perceived stress ( $b = .40$ ,  $p = .000$ ) demonstrated significant effects on the scores of sleep quality (see Figure 2). The adjusted  $R^2$  was .25, indicating that time management and perceived stress explained for a quarter of the variance in the scores of sleep quality by a combined effect. Referring to Cohen (1988), this is a

small to medium effect when compared to typical effect size. Moreover, it is the largest effect size compare with separated effect.



*Figure 2.* The result model of time management disposition, perceived stress and sleep quality.

## CHAPTER FIVE

### Discussion

With respect to the hypotheses introduced in literature review, the results of the present study supported hypotheses four to six; however, they did not comply with hypotheses one to three. Moreover, the results supported the initial model of time management, perceived stress and sleep quality. A combined effect of time management and perceived stress was found and it appeared to be the best predictor of sleep quality. Apart from hypotheses testing, in exploratory testing, it showed a significant relationship between age and academic attainment.

First of all, in the exploratory data analyses section, it was found that there were no significant difference between gender and academic performance, and no significant correlation between year of study and academic performance. Conversely, there was pointed out a significant relationship between age and academic attainment. More specifically, the older the students were, the lower the grade they had or vice versa. Regarding older students, a possible explanation is that there are negative attitudes/stereotypes toward older students, whose age differ from most of the traditional students. This stereotype leads to internalization by members of the school community and it turns out to be a self-fulfilling prophecy to those students as well as their teachers. The detailed process is described in the following

paragraphs.

First of all, people commonly presumes that older the person, poorer his/her learning ability (Carlan, 2001). For instance, Carlan (2001) claimed that some people views older students as having weaker learning ability, decreased work efficiency, less adaptability, less memory capacity, and poor study strategies. These tags stigmatized older students. In addition, another possible explanation for explicating why people view older students of having poorer academic performance is that people may unconsciously consider older students as detained students or repeaters who have been stayed down by school due to poor academic performance. Therefore, they might think older students should be poorer in academic achievement.

Surrounded by this negative stigma, internalization may happen. Internalization (Meissner, 1981) is a process of accepting value or norm that is created by others. At the beginning, the person learns about the value from others through socialization and interaction with others. Afterward, he or she goes through a process of understanding. He or she thinks about why people value in this way and why it makes sense. As time goes by, the person accepts the value of others and unconsciously turns it as his or her own value. In other words, internalization is a process of changing and influencing ones' values and behaviors unobtrusively and

imperceptibly. Applying this concept to the present findings, older students might recognize how others think about them and as time went on, they may internalize the negative stigma of others as their own value.

After the internalization, self-fulfilling prophecy may take place to influence those older students. Self-fulfilling prophecy (Merton, 1968) states that people form certain presumptions/expectations toward certain things. After these presumptions, people tend to adjust their behavior according to their initial expectations (behaviors match their presumptions). The adjusted behaviors result in matching the initial expectation. The initial expectation comes true and the prediction confirmed which formed a circle of self-fulfilling prophecies. Applying self-fulfilling prophecy to explain the present findings, older students originally presumed that they cannot attain high academic achievement due to the stigmatization and internalization (which mentioned right before this paragraph). They may think when comparing to traditional students, they (older students) have weaker learning ability (Carlan, 2001). The process of stigmatization and internalization diminished their expectations for their academic attainment. Then, they change their behavior in accordance with their expectations. For instance, they expected a pass degree and therefore they do not need to work so hard to get a pass degree. Finally, the results confirmed their initial expectation. As a vicious cycle, they may act according to

their presumptions in every semester.

The self-fulfilling prophecy not only applies for older students themselves, it is also applicable to their teachers. Similarly, teachers of older students may hold negative attitudes toward this group of students. Rather than paying attention to older students, teachers may willingly pay more attention and teach younger students, who viewed as smarter than older students, with greater enthusiasm. As a result, they pay relatively less attention and put less effort on those older students. The teachers' action (less attention and treated poorly with older students) damaged older students' learning opportunities. Finally, older students got poorer results comparing to traditional students. The prediction confirmed and the things loop continuously.

After explaining the results of exploratory analyses, now go back to discuss the findings of hypotheses analyses. For hypotheses one to three, there were no significant relationships between time management disposition, perceived stress, sleep quality and academic performance which supposed to be significant. To explain these contradicting results, a possible explanation is that it may be due to the limitation of this study. In order to avoid missing data, this study only asked participants to point out their range of current cGPA, rather than directly ask for their exact cGPA. It revealed a problem: students within the same range (for



example, the first class of honours, cGPA ranging from 3.40 to 4.00) varied in their time management disposition, perceived stress and sleep quality a lot (within group variances). For example, a student who got cGPA of 3.98, and his or her time management disposition, stress and sleep quality can be very difference from another student who current cGPA is 3.40. Therefore, possibly due to the within group variances, the range of cGPA fails to correlate time management disposition, perceived stress and sleep quality.

Another reason to explain why perceived stress fails to predict academic performance is that Perceived Stress Scale is too general to assess university students' stress. In review of the literature, it is true that certain studies using college-specified stress measurements found a significant negative correlation between college stress and academic achievement (Pritchard & Wilson, 2003; Russell & Petrie, 1992). However, there is also an evidence to show non-significant relationship between stress and academic performance. For instance, Petrie and Stoever (1997) illustrated that life events stress was not a significant predictor of academic performance for sport-major university students. Thus, this study suggests that the non-significant result of this study may be due to the measurement which is too general to assess college-related stress. It is recommended that future studies should include college-related or academic-related instruments to find out the

relationship between stress and academic performance in college population. For example, Gadzella's (1991) Student Life Stress Inventory, Li's (2002) Stress Scale for College Student and so forth. These measurements specify certain types of stress for college students such as academic hassle, personal hassle and negative life event (Li, 2002) which are deemed to be more specific and accurate to measure university students' perceived stress levels.

On the other hand, as expected previously, hypotheses four to six were consistent with earlier findings. Firstly of all, hypothesis four is supported by the results that time management disposition was a negative predictor of stress. The more efficient time use the person was, the less stress the person experienced or vice versa. It is not hard to imagine that a student having very efficient time use or very good in time management, will experience less stress. Because a person with good time management skills or disposition, he or she may act accordingly. These time-saving actions have the potential impact on reducing time pressures. For instance, students with good time management skills organize and prioritize things well without crashing with other things and they can arrange time for finishing tasks on time. Therefore, they experience fewer time pressures. As a busy university student, good time management relieves lots of stress for them. Imagine that a student with good time management arranges efficient time to do different tasks. For

instance, one's "golden time" is in the morning that is the most efficient time for him or her to do the most difficult tasks. By reflecting one's time use, he or she recognizes his or her "golden time" and will arrange that period to finish difficult tasks. So that, at night, he or she can go for relaxing activities (e.g. hang out with his or her friends or enjoy a nice dinner and so on).

At the same time, for hypothesis five, it is justifiable that perceived stress was a positive predictor of poor sleep quality. As a person perceiving less stress, he or she can sleep well without difficulty falling asleep. On the contrary, if a person perceived higher levels of stress, he or she may have difficulty falling and maintaining asleep. The person may easily wake up or even get up with little disturbance. For example, as mentioned in literature review, a study has showed that stress management can significantly improve sleep quality for HIV-infected participants (Phillips & Skelton, 2001). Although HIV-infected participants are far different from university students, they share similar results. It may imply that this result can be generalized also to population other than university students.

The present findings are consistent with hypothesis six, which suggests that time management is a negative predictor of sleep quality. A possibly reason to explain it is that when a student enrolls in university, one's sleep pattern changes. During the secondary school, one has regular school schedule and relatively more

stable sleeping schedule. When he or she entered university, things changed. College students, comparing to other groups of people (e.g. secondary students), have more freedom to decide their use of time. Nonetheless, a lot of college students rather choose to hang out with friends or do something else, but not having a nice dream (Tsai & Li, 2004). Bad time management leads to odd or inconsistent sleep schedules. Numerous studies pointed out that inconsistent sleep schedules result in poor sleep quality (Cheung, 2003; Lam, 2003). Thus, it is undoubtedly that poor time management will lead to poor sleep quality.

Hypothesis seven (compare to separated effects, combined effect of time management and perceived stress is better on predicting sleep quality) is supported by the results of regression analyses, which provides a larger effect size ( $R^2$ ) than separated effects. It indicated that time management and perceived stress were the most significant predictors of sleep quality for the present sample. In other words, higher the score in time management disposition, lower the level of perceived stress the participant scored, and better the sleep quality the person had, or vice versa. To elucidate that, for example, poor time management practices and habits create stress and its combined effects result in poor sleep quality. This poor time management practices and habits included irregular and inconsistent sleeping schedules give rise to poor sleep quality. In fact, studies have demonstrated that irregular and

inconsistent sleeping schedules are the main reasons for poorer sleep quality (Cheung, 2003; Lam, 2003). Meanwhile, stress also directly affects sleep quality (Phillips & Skelton, 2001). Combination of these two effects imposes stronger influences on one's sleep quality.

#### *Limitations of the Present Study and Suggestions for Future Studies*

As mentioned above, this study only required participants to rank their current cGPA, which hinder the analysis. Researchers are suggested to ask participants for the exact cGPA with two decimal points or try to cut the ranges into a smaller chunk in future.

Secondly, not accounted for error variances, this study cannot tell how much error variances influence the analyses. It is suggested to adopt structure equation modeling for future analyses. Using of structure equation modeling, researchers can testify the model with error variances. Moreover, it can tell how fit the model is by looking at different model fit indexes.

Thirdly, this study adopted convenience sampling which is a kind of non-probability sample. It is better to use probability sampling method which guarantees representativeness. There are several types of probability sampling method: simple random, systematic, stratified and multistage sampling, and so on. However, most of them are difficult for implementation. For example, the simple

random and systematic sampling methods are hard to implement. It is hard to get the whole list of students studying in university. Alternatively, researchers can use stratified sampling, which is a type of probability sampling method and also a kind of multistage sampling. In the first stage of stratified sampling, a sample is selected from a wide range of predetermined areas/ strata. For example, research aims to investigate university students in Hong Kong. A sample can be stratified by universities or major subject or even year of study and so forth. In the second stage, a sample is chosen at random within those strata that selected before.

Lastly, causal relationship cannot be drawn in this study. Suggest future studies to design experiment or conduct a longitudinal study on this topic to reveal the causal relationship.

### *Implications*

Based on the present findings, implications for practitioners and university students are discussed. Firstly, practitioners (e.g. counselors or psychologists) can provide time management and stress management programs for university students. It should aim to educate university students with better time management as well as stress management skill. It may help them free from negative consequences of poor sleep quality, that are brought about by poor time management and stress management. The results showed that combining time management and stress

management better predict sleep quality. Therefore, practitioners should work on both time management and stress management programs. However, if the time is not allowed to implement both programs, the first priority should be given to the stress management. As by considering the effect size of perceived stress, it is very much larger than time management disposition. This suggests that perceived stress being more explainable to sleep quality. Alternatively, practitioners can work on blending the two aspects of training within a program and deliver it to university students.

For university students, the findings contribute to help them to step out for their better life. The findings may help them recognize the connection among time management, stress and sleep quality. Being informed of this important linkage, university students should start managing one's own time use and learn how to manage time and stress. Improving one's time and stress management benefit university students a lot. It prevents them from negative consequences of poor time management, higher levels of stress and poor sleep quality (as stated in the literature review). So that university students can have a both psychologically and physiologically healthy living and after graduate, they can contribute well for their society.

To conclude, the present study aimed to investigate the relationships between time management, stress, sleep quality and academic performance. The results

showed that both time management and stress are significant predictors of sleep quality. Moreover, instead of separate effect, the best predictor of sleep quality was found to be the combined effect of time management and perceived stress. On the other hand, these three constructs were found to be unrelated to academic performance. Lastly, implications for practitioners and university students are discussed.



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## Appendix 1

*Participant permission form*

I.D. No.: \_\_\_\_\_

**心理學研究同意書**

時間管理，壓力與睡眠質素研究

A Study of Time Management, Perceived Stress and Sleep Quality

本人 Wavy 為香港浸會大學心理學系三年級學生，現正進行一項研究調查作為畢業論文。是次研究邀請約 100 名香港浸會大學心理學系學生以義務性質參與，所收集之資料關於參與者的時間管理傾向，主觀壓力及睡眠質素。以下包含三份中文問卷（TMD，PSS 及 CPSQI），完成這些問卷需時約 10-15 分鐘。而整個研究調查之結果只會用作學術研究，一切資料將會絕對保密。

閣下可選擇性填寫你的電郵地址，研究完成後，你將會以電郵獲得一份有關閣下的時間管理，壓力與睡眠質素的詳盡報告及研究結果的扼要。另外，如閣下選擇填寫電郵地址，將有機會被邀請參與一對一深入面談，內容將會涉及閣下之時間運用，壓力及睡眠質素。

本人誠意邀請閣下參與是次研究，如有任何問題，歡迎透過電郵 06636306@hkbu.edu.hk 或電話 60723732 與本人聯絡。

\_\_\_\_\_  
參與者簽署\_\_\_\_\_  
電郵地址（選擇性填寫）

## Appendix 2

*Copies of instruments**Time Management Disposition (TMD)*

指引：

1. 除非特別註明，否則請用「○」圈出表示最恰當的選擇，並請回答所有問題。
2. 請盡量以快速、不假思索方式填答，亦即不要去思慮計算每一題分數背後之意涵，以期確實反應您真實的狀況。

時間管理傾向 (TMD)

	完全 不符合	不 符合	中 立	符 合	完全 符合
1. 我認為「一串光陰一串金」這句話是正確的。	0	1	2	3	4
2. 我通常把每天的活動安排成一個日程表。	0	1	2	3	4
3. 「時間就是效益」這句話是正確的。	0	1	2	3	4
4. 我每天都給自己指定一個學習目標。	0	1	2	3	4
5. 無論做什麼事情，我首先要考慮的是時間因素。	0	1	2	3	4
6. 我以為將來比現在和過去更重要。	0	1	2	3	4
7. 我總是把最重要的工作安排在活動效率最高的時間裡去做。(例如我覺得早上的活動效率最高，我會把最重要的工作安排在這段時間裡做。)	0	1	2	3	4
8. 無論做什麼事情，我總是既有短期安排又有長期計劃。	0	1	2	3	4
9. 目前我尚年輕，浪費一些時間無所謂。	0	1	2	3	4
10. 在每週開始之前，我都制定了目標。	0	1	2	3	4
11. 對每個人來說，時間就是一切。	0	1	2	3	4
12. 在每個學期我都要制定自己的學習計劃。	0	1	2	3	4
13. 我認為我在學習和課外活動上的時間分配是合理的。	0	1	2	3	4
14. 我總是把大量的時間花在做重要的工作上。	0	1	2	3	4
15. 在新年開始的時候,我通常都要制定這一年中自己的奮鬥目標。	0	1	2	3	4
16. 我相信時間就是生命。	0	1	2	3	4
17. 我課後複習功課的時間是由老師佈置的作業量來決定的。	0	1	2	3	4
18. 我認為時間是可以有效地加以管理的。	0	1	2	3	4

19. 我通常把重要的任務安排在計劃表的重要位置上。	0	1	2	3	4
20. 我能夠有效地利用自己的時間。	0	1	2	3	4
21. 我經常根據實際情況對計劃進行調整。	0	1	2	3	4
22. 如果有幾件事要同時做，我經常要衡量它們的重要性來安排時間。	0	1	2	3	4
23. 我能夠很好地利用課堂上的學習時間。	0	1	2	3	4
24. 我對自己設定的目標充滿信心。	0	1	2	3	4
25. 我對每個星期要做的事情都有一個計劃安排。	0	1	2	3	4
26. 我經常對自己利用時間的情況進行總結。	0	1	2	3	4
27. 在處理好幾件事情的時候，我認為最好是每件事情都做一些。	0	1	2	3	4
28. 利用好時間對我具有重要的意義。	0	1	2	3	4
29. 我對自己浪費掉的時間深感懊悔。	0	1	2	3	4
30. 我確定的目標通常都難以實現。	0	1	2	3	4
31. 世上最寶貴的是時間。	0	1	2	3	4
32. 我的時間大部分都掌握在自己手中。	0	1	2	3	4
33. 我通常根據學習任務的重要性來安排學習的先後次序。	0	1	2	3	4
34. 只要是重要的工作，我一定要擠時間去做。	0	1	2	3	4
35. 我相信我的計劃安排通常是合理的。	0	1	2	3	4
36. 我認為我對事情重要性的順序安排是合理的。	0	1	2	3	4
37. 要做的事情很多，我卻能處理好這些事。	0	1	2	3	4
38. 我常常與同學交流合理利用時間的經驗。	0	1	2	3	4
39. 我認為時間就是力量。	0	1	2	3	4
40. 我通常都能按時完成老師佈置的作業。	0	1	2	3	4
41. 我常常對自己的工作在什麼時候完成沒有一個期限。	0	1	2	3	4
42. 我每天什麼時候學習，什麼時候玩都有一個清楚的想法。	0	1	2	3	4
43. 爲了提高時間利用效率，我經常學習有關如何有效利用時間的知識。	0	1	2	3	4
44. 我總是根據目標的完成情況來檢驗自己的計劃。	0	1	2	3	4

*Perceived Stress Scale (PSS)***Perceived Stress Scale (PSS)**壓力感受量表 (PSS)

這份量表是在詢問在**最近一個月**來，您個人的感受和想法，請您於每一個題項上作答時，去指出您感受或想到某一特定想法的頻率。

請回想最近一個月來，發生下列各狀況的頻率。	從不	偶爾	有時	常常	總是
1. 一些無法預期的事情發生而感到心煩意亂	0	1	2	3	4
2. 感覺無法控制自己生活中重要的事情	0	1	2	3	4
3. 感到緊張不安和壓力	0	1	2	3	4
4. 對於有能力處理自己私人的問題感到很有信心	0	1	2	3	4
5. 感到事情順心如意	0	1	2	3	4
6. 發現自己無法處理所有自己必須做的事情	0	1	2	3	4
7. 有辦法控制生活中惱人的事情	0	1	2	3	4
8. 常覺得自己是駕馭事情的主人	0	1	2	3	4
9. 常生氣，因為很多事情的發生是超出自己所能控制的	0	1	2	3	4
10. 常感到困難的事情堆積如山，而自己無法克服它們	0	1	2	3	4

## Chinese version of PSQI

## 睡眠質素量表 (CPSQI)

以下的問題有關你在過去一個月的平常睡眠習慣，你的答案應表示出在過去一個月大多數時間最準確的答案。

在過去一個月裡，

1. 平時你通常於何時上床睡覺？（請以國際時間填寫）\_\_\_\_\_時\_\_\_\_\_分
2. 你每晚需要多長時間（分鐘）才能入睡？\_\_\_\_\_分鐘
3. 平時你通常於早上何時起床？（請以國際時間填寫）\_\_\_\_\_時\_\_\_\_\_分
4. 平時你每晚實際睡眠時間是多少小時？（這可能會和你花在床上的時間不同）\_\_\_\_\_小時\_\_\_\_\_分

5. 在過去一個月裡，你有幾經常有睡眠困難...	在過去一個月沒有	少於每星期一次	每星期一至兩次	每星期三次或以上
a. 不能於三十分鐘內入睡	0	1	2	3
b. 在半夜或早上很早醒來	0	1	2	3
c. 要起床去洗手間	0	1	2	3
d. 不能順暢地呼吸	0	1	2	3
e. 咳嗽或有巨大的鼻軒	0	1	2	3
f. 覺得很冷	0	1	2	3
g. 覺得很熱	0	1	2	3
h. 發惡夢	0	1	2	3
i. 有痛楚	0	1	2	3
j. 其他原因：_____	0	1	2	3
6. 在過去一個月裡，你有幾常要食藥來幫助睡眠？（醫生的處方或自行購買的）	0	1	2	3
7. 在過去一個月裡，當駕車，進餐或進行社交活動時，你有幾常覺得難以保持清醒？	0	1	2	3
8. 在過去一個月裡，你有幾常覺得	0	1	2	3

熱忱地完成事務是困難的？				
	非常好	一般好	一般差	非常差
9. 在過去一個月裡，你會怎樣評價你的睡眠質量？	0	1	2	3

個人資料

年齡：\_\_\_\_\_ 性別：☐男 ☐女

cGPA：☐ below 2.00    ☐ 2.00 to 2.19    ☐ 2.20-2.49    ☐ 2.50-2.99  
☐ 3.00-3.39    ☐ 3.40-4.00