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From Hindrance to Growth: The Role of Life Meaning and Automatic Thinking in the Challenge-Hindrance Stress Framework

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Abstract:

This study explores the intricate relationship between perceived stress and happiness among adolescents through the lens of the *Challenge-Hindrance Stress Framework*. Utilizing a sample of 103 Chinese high school students, it investigates how distinct stressors types influence subjective well-being and examines the interplay of *Negative Automatic Thinking (NAT)* and *Perceived Meaning of Life (PML).* Findings reveal that higher stress levels are generally linked to lower subjective well-being (SWB), while challenge stressors might slightly promote SWB and hindrance stressors impede SWB, supporting the *Challenge-Hindrance Stress Framework.* Also, higher sense of meaning is associated with greater happiness. Additionally, *Negative Automatic Thinking (NAT)* scores are positively correlated with both Challenge and Hindrance stressors, with a stronger association observed between *NAT* and Hindrance stressors. This research contributes to the growing body of literature by highlighting the cultural dimensions of stress appraisal and suggesting directions for future studies on resilience-building interventions and cross-cultural comparisons.

Keywords: Perceived Stress· Happiness· Meaning of Life· Negative Automatic Thinking

"The necessity of pursuing true happiness is the foundation of all liberty- happiness, in its full extent, is the utmost pleasure we are capable of."
-- John Locke
Challenge-Hindrance Stress Framework·Stress Appraisals

Introduction

Happiness has been an imperative topic for humanity since ancient times, and it has experienced a rapid revival in recent decades. Greek philosopher Aristotle believed that happiness (or eudaimonia) is the supreme good of mankind, which John Locke, in

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centuries later, mentioned that it is the utmost pleasure humans are capable of. Psychologists put efforts on determining the nature of happiness since decades ago, when Diener et al.(1985) investigated the Satisfaction With Life Scale(SWLS) which proposes that happiness is subjective and can be measured by self-rating. However, scholars such as Spector(1994) and Howard(1994) kept skeptical to the validity of the cross-sectional self-report studies, and new definitions which aimed to be more objective was brought(Griffin et al, 2007): happiness was defined as a list of several non-reducible features that make contribution to life quality. In these two decades, positive psychologists who focused normal individuals' development led a revival of happiness researches. However, these researchers have shifted their focus from the specific definitions of happiness to examining how individuals achieve it, being keen on identifying the protective factors and risk factors such as positive relationship and stress(Seligman, 2011b).

Although stress is widely regarded as a substantial impediment to happiness, early researchers did not prioritize the examination of stressors as risk factors affecting well-being. The concept of stress was originally use in biomedical research by Selye (1950), defined as the non-specific response of the body to any deleterious stimulus which threatened bodies' homeostasis. Selye discovered that the activation of the hormonal *Hypothalamic Pituitary Adrenal axis* (HPA axis) could causes various impacts such heart disease, adrenal hyperplasia and depression which he named as *General Adaption Syndrome* or *Stress Syndrome* (Selye, 1955). Subsequent researchers show solicitude for stressors effects on health, such as damages to people's circulatory systems and induction of cancer, anxiety, and depression (Bidzińska, 1984; Esch et al., 2002; Carmine, 2011).

Scholars also showed interests in how stress could affect academic and workplace performances. Some believed that the presence of stressful events would significantly reduce work performances and might lead to severe mental effects(Motowidlo et al., 1986; Pflanz & Ogle, 2006; Robert & Hockey, 1997). Pflanz & Ogle discovered that more approximately 27.4% of military personnel report a significant level of work stress, which was directly correlated to impaired work performances, poorer physical health and resentment towards supervisors. This can be explained by a cognitive-energetical framework which stressful goals distort dynamic resources allocation and disturb appraisals of performance-cost trade-off (Robert & Hockey, 1997). Some scholars, however, proposes that some work stress have beneficial effects on employees performances by mentioning that employees with high level of Trait Anxiety(TA) would exert greater efforts which leads to better sales performances(Mughal et al., 1996).

In recent years, with the development of positive psychology and the renewed aim on promoting happiness and enhancing human functioning (Seligman 2002), more scholars have been concentrating on the stress-happiness relationships. Numerous studies demonstrate a significant negative correlation between job or daily stress and happiness (Abdollahi et al., 2014; Akgunduz et al., 2023; Schiffrin & Nelson, 2010; Silva & Figueiredo- Braga, 2018). Indeed, Silva & Figueiredo- Braga examined factors on academic stress, depression and subjective happiness of 410 pharmacy students. They proposed that moderate levels of anxiety are triggered by stressors under university campus context, which is detrimental to students' academic satisfaction and subjective happiness. Yet, some scholars argue that a pure negative correlation should be considered as oversimplistic. The original founder of stress, Selye(1987), classified stress into eustress (or "good stress") and distress depending on whether they exceed one's capacity to expend energy in maintaining homeostasis. As distress was conceptualized as over-amount of stress, eustress might be considered as the optimal level of stress, all altered with an individual's capacity. Hence, it was shown on the Yerkes Dodson Law that increasing stress to some extent is beneficial to performances and reduce depression. Simmons and Nelson (2001) further highlighted the positive impact of eustress on happiness by using psychological indicators such as hope, positive affect, meaningfulness(Le Fevre et al., 2003).

However, as Le Fevre et al.(2003) points out that, whether a particular demands produce "goods" or "bad" is determined not only by the perceived amount of demand, but also the perceived characteristics of demands which is disregarded in Selye's theory. Discovering the limitation of the former theory, Cavenaugh et al(2000) developed a Challenge-Hindrance Stress Framework while studying the self-reported work stress among 1,886 managers in the United States. Indeed, these stressors are identified by their characteristics since challenge stressors were defined by a positive relation to job satisfaction and an inverse relation to job search, and hindrance stressors are defined just as opposite. Cavenaugh et al. (2000) reported that challenge stressors directly correlate to job performance and hindrance stressors have a negative correlation, which is further testified in academic area (LePine et al., 2004). Recent researches further verify that challenge stressors might be an important opportunity to enhance resilience and promotes happiness (Bonanno, 2005; Crane & Searle, 2016). Crane & Searle conducted a 2-wave longitudinal research with 208 working adults, discovering that the challenge stressors in former time had significantly influenced psychological resilience 3 months later (Time 2), and the hindrance stressors negatively predicted resilience

in Time 2 while positively predicted strain. These findings demonstrates that stressors might have positive relationship with happiness determined by their characteristics.

Cognitive appraisal of the stressful events, as the core of a stress reaction, were furthered examined in stress-happiness relationship. In 1967, Beck had identified a form of negative schemata in depressed population referring to self-deprecation and underlying negative attitudes ("I'm a worthless person"). Stiles & Gotestam(1989) further proves this negative schemata (also called negative automatic thinking) can directly predict depression. Despite these results, negative automatic thinking (NAT) was not directly examined in stress-happiness relationship, whereas Lightsey (1994) investigated the buffering effects of positive automatic thought (PAT) in 152 undergraduates on psychological distress caused by stressors. Lightsey demonstrates that there were weaker relations between stressful events and depressive mood for higher level of PAT which proves its buffering role. Empirical evidences also supports that happiness-stress relationship can be affected by several other factors. People's resilience, neuroticism and social supports can directly moderate the extent of psychological distress(Crane & Searle, 2016; De Jong et al., 1999). Some authors further assumes that the effects of stressful events might be two ends of a same continuum in the short-term, but emerge as non-interfering distinct dimensions in a long-term view which still lack valid evidence to support (Diener 2000; Schiffrin & Nelson, 2010). Although plenty of studies have demonstrates relationship between happiness and stress, yet most studies in the field mainly focus on college students and working population(Schiffrin & Nelson, 2010; Carmine, 2011). In this era, however, anxiety and depression symptoms in teenager populations have been sharply rising which might be caused by increasing stressful events. Therefore, the major purpose of this study, then, was to investigate the happiness-stress relationship in adolescents population.

A second major objective of this study was to investigate the moderating effects of several factors on the stress-happiness relationship. Considering the significant influence of interpretation to stressors, this study includes negative automatic thoughts and predicted that it should negative impact stress-happiness relationship (Lightsey,1994). Also, as different characteristics of stressors played a role, the Challenge-Hindrance Stress Framework was incorporated. Interestingly, the NAT level might exacerbates the detrimental effects of hindrance stressors, or it might increase the opportunity of appraising stressors as hindrance. We hypothesize that automatic negative thinking exacerbates the detrimental effects of hindrance stressors or increases the likelihood of appraising stressors as hindrances. Furthermore, the perceived meaning of life (MOL), a factor occurred less frequent in previous research, would be included since it was a core factor relating to happiness (Seligman, 2011b). Several studies contend that strong senses of MOL could buffer against depression and promote resilience to stressors (Halama, 2014; Ostafin & Proulx, 2020), and thus it is reasonable to hypothesize that it may serve as a buffer, mitigating the negative effects of stress.

Hypothesis

In light of the former discussion, this study aimed to reappraise the relationship between perceived stress and happiness through the moderating effects of *Perceived Meaning of Life* and *Negative Automatic Thinking* (NAT) under the Challenge-Hindrance Stress Framework. Based on the established conceptual models, it was hypothesized that:

I. The level of happiness is positively correlated to challenge stressors and inversely correlated to hindrance stressors.

II. The level of Meaning in Life is positively correlated with challenge stress and happiness;

III. The level of NAT is negatively correlated with challenge stress and happiness.

Methods

Participants 103 Chinese students from private high schools are included in a voluntary way. Participants consisted of 52 females (50.5%), 47 males (45.6%) and 4 who does not willing to respond their gender (3.9%) with a mean age of 16.48 (SD=1.19), and all participants between 14 and 16 years old received informed consents signed by guardians. Participants parent's education was approximately College level, and the perceived socioeconomic status under a 1 to 10 Lickert scale was 6.33.

Measures Respondents completed an 73-items questionnaire online in approximately 20 minutes completed with 5 scales: one measured perceived stress; another perceive life meaning; a third subjective well-being, fourth challenge-hindrance stressors test; and finally Negative Automatic Thinking. The measures analyzed in this study are described below in the same sequence they were presented.

Perceived Stress Scale (PSS)

The Perceived Stress Scale (PSS) was a 14-item measure of respondents appraisal of how stressful their life events were using a 5-point scale(1 = not stressed at all; 2 = slightly stressed; 3 = moderately stressed; 4 = very stressed; 5 = extremely stressed). The items were designed to examine the degree to which participants found their

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lives "unpredictable, uncontrollable and overloading" (Cohen et al., 1983). The reliability and Cronbach's alpha for the sample was .85(Cohen et al., 1983).

The Meaning of Life Questionnaire (MLQ)

The *Meaning of Life Questionnaire* (MLQ) was a 10-item measure of respondents appraisal of the presence and search of their life meaning with no overlapping with distress measures. Respondents rate 10 statements about their life meaning (5 about already present life meaning, another 5 about searching life meaning) on a 7-point Likert scale (1= Absolutely untrue; 2= Mostly untrue; 3= Somewhat untrue; 4= Can't say; 5= Somewhat true; 6= Mostly true; 7= Absolutely true).

Satisfaction with Life Scale

The Satisfaction with Life Scale (SWLS) was a 5-item measure of respondents overall satisfaction of life (or happiness). Respondents rate 5 statements about their life satisfaction on a 7-point Likert scale (1= Absolutely untrue; 2= Mostly untrue; 3= Somewhat untrue; 4= Can't say; 5= Somewhat true; 6= Mostly true; 7= Absolutely true). This measure is mixed with MLQ measure to prevent any participant biases.

Challenge-Hindrance Stressors Scale

The Challenge-hindrance Stressors Scale (CHSS) was a 8-item measure of respondents perceived stressfulness of two types of stressors: challenge stressors and hindrance stressors. Respondents rate 8 stressors (3 challenge stressors & 5 hindrance stressors) on a 5-point Likert scale (LePine et al, 2004).

Automatic Thinking Questionnaire-Negative (ATQ-N)

The Automatic Thinking Questionnaire-Negative (ATQ-N) was a 30-item measure of negative schemata. The items were designed to examine the degree to which respondents hold a negative attitude towards themselves. Respondent would rate the frequency of occurrence of the listed beliefs on a 5-point Likert scale (1= not at all; 2= sometimes; 3= moderately often; 4= often; 5= all the time).

Results

Mean, Variance and Reliability Estimates

Mean scores on the *PSS* and *SWB* for the complete samples (combining males and females) were 42.00 and 22.21. Standard deviations for these sample were 9.92 and 6.79 in respect. Mean PSS and SWB scores for males were 41.98 and 22.57, with standard deviations of 8.74 and 6.58 . For female samples, the respecting mean scores were 42.67 and 21.25, with standard deviations of 10.77 and 6.72. Although results indicate that the PSS scores of females were slightly higher than males while the SWB scores were slightly lower, yet it didn't approach any statistical significance in this sample. Moreover, participants' average scores of *Perceived Meaning of Life, Challenge Stress level, Hindrance Stress Level* and *ATN* were 46.24, 16.32, 9.45 and 68.96. The standard deviations for these measures were 11.39, 4.95, 3.42 and 33.00.

Age was unrelated to neither one of *PSS, SWB, Perceived Meaning of Life* or *ATN* in this sample. Since age distribution in this campus was skewed within the range of 16 to 19 years old, it's unlikely to deduce a correlation between age and these variables. The *Education Level of Father* was unrelated to these variables as well, while the *Education Level of Mother* was negatively correlated with the challenge stress level, with a correlational index of -0.214 ($p < .05$). For the socioeconomic status, it was negatively correlated to the PSS scores with a correlational index of -0.244 ($p < .05$), while having positive correlation of both *SWB scores* and *Perceived Meaning of Life*, respectively 0.279 and 0.351 ($p < .01$).

Correlation within happiness-stress relationship

Table 1

Mean Instrument Scores and Correlations

Item	*M*	*SD*	1	2	3	4	5	6
1. PSS	42.000	9.922	—	-.627**	-.365**	.363**	.590**	.696**
2. SWB	22.214	6.792		—	.655**	0.022	-.244*	-.432**
3. PML	46.243	11.393			—	.218*	0.018	-0.192
4. CHA	16.320	4.949				—	.805**	.476**
5. HIN	9.447	3.421					—	.670**
6. ATQ-N	68.961	33.001						—

Note. $N = 103$. Values in correlation matrix are fractional. PSS = Perceived Stress Scale; SWB = Satisfaction with Life Scale; PML = Meaning of Life Questionnaire; CHA = Challenge Stress Measure, HIN = Hindrance Stress Measure, Challenge-Hindrance Stressors Scale; ATQ = Automatic Thoughts Questionnaire-Negative

* $p < .05$. ** $p < .01$

Since *Subjective Well-Being* level, or happiness, should generally increase with the increase of *Challenge Stress Level* and decreases with the increase of *Hindrance Stress Level*, the *SWB* scores should show positive and inverse relationship with the two variables respectively. As obvious from Table 1, there was a strong negative correlation between the scores of *PSS* and *SWB*, with a correlation index of -.627 ($p < .01$). This result indicate a basic as-

sumption that the increase of stress level should positively relate to the decrease of happiness.

Referring to the *Challenge-Hindrance Stress Framework (Hypothesis I)*, the scores of *SWB* should be directly positively correlated to *Challenge Stress Level* and inversely correlated to *Hindrance Stress Level*. According to Table 1, it's apparent that, first, *Challenge Stress Level* has a very strong correlation with *Hindrance Stress Level*, plausibly because that they both indicate perceived stress. Moreover, the scores of *SWB* demonstrate a weak positive correlation with *Challenge Stress Level*, though insignificant. The scores of *SWB* also show a weak to moderate correlation with *Hindrance Stress Level* with an index of -0.244 ($p < .01$), which solidly support the *Hypothesis I.*

Furthermore, looking into the interplay of Perceived Meaning of Life and NAT in happiness-stress relationship, it should be demonstrated that the scores in *Perceived Meaning of Life* is positively correlated to *Challenge Stress Level* and inversely correlated to *Hindrance Stress Level* (*Hypothesis II*). Table 1 shows that there was an weak to moderate correlation between *PML* scores and *Challenge Stress Level* with an R value of 0.218 ($p < .05$), while there is an insignificant weak correlation between *PML* scores and *Hindrance Stress Level*, which testified the *Hypothesis II*. Also, Table 1 displayed that the scores of *Negative Automatic Thinking* were positively correlated to both Challenge Stressors ($R = 0.476$) and Hindrance Stressors ($R = 0.670$) which under the p value of $< .01$. Although they both show direct correlation, the Hindrance Stressors demonstrate higher correlational coefficient with *ATQ-N* than Challenge Stressors, partly supporting the *Hypothesis III*.

General Discussion

Results for the complete sample confirmed the hypothesis that *Subjective Well-Being Level* has a positive relationship with *Challenge Stressors* and negative relationship with *Hindrance Stressors.* This result indicates an imperative conclusion which characteristics of different stressors have distinct effects on the *Well-Being Level*, which align with the theory proposed by Le Fevre et al. (2003) and Cavanaugh et al. (2000). Also, it represents that the *Challenge-Hindrance Stress Framework* are effective in the background of high school studies, allowing theoretical generalization.

Contrary to hypothesis, however, the Challenge Stressors did not act like "Challenge" on adolescents that they show no positive correlation with participants' *Subjective Well-Being Level*. Unexpectedly, the Challenge and Hindrance Stressors did not show much differences in the relationship with *Negative Automatic Thinking Level.* These phenomenons might be explained by the cultural contexts or social norms which influenced participants perceptions of Challenge and Hindrance Stressors. This study has been carried out in the context of Chinese Education System, which students are often accustomed to repetitive tasks during elementary or middle school years which was an important indicator of Hindrance Stress (Cavanaugh et al, 2000). Also, students might be less familiar with creative tasks (indicator of Challenge Stress). Therefore, stressors typically classified as "hindrances" in Western contexts might be viewed as relatively conventional within Chinese cultural frameworks, not necessarily eliciting significant distress or affecting overall well-being. Further research is needed to explore the cultural dimensions of stress and coping strategies.

Moreover, it has been testified that the *Perceived Meaning of Life* is positively correlated to *Subjective Well-Being* and Challenge Stress, and *PML* has an inverse correlation with Hindrance Stress. One plausible explanation is that a strong sense of meaning in life serves as a buffering mechanism. According to Antonovsky (1987), an American sociologist, the sense of meaning in life is an integral component of the concept of his "sense of coherence," the essential internal resources that facilitate adaptation to stress. Also, the *Perceived Meaning of Life* shares similar context with *commitment,* a key element of hardiness which refers to a psychological construct that influence the effects of stressful conditions (Maddi, 1998).

An alternative explanation will be that a strong sense of Life Meaning can affect one's interpretation of stress, or more likely to interpret it as Challenge Stress. Empirical studies suggest that individuals with a pronounced sense of meaning in life also exhibit a strong internal locus of control (Rotter, 1966) as they feel that they have willingness and ability to change the situations, which might make them take stressful situations as personal challenge. They may be more inclined to reframe such stressors as opportunities for growth, thus enhancing their capacity to cope with stress and improves their well-being level.

Negative Automatic Thinking, although not showing strong relationship with Challenge and Hindrance stressors, still display a strong inverse correlation with *Happiness Level.* As a form of negative schematized cognition, the *Negative Automatic Thinking style* may lower one's self-esteem, promoting them to develop an external locus of control, and lead to learned helplessness that is likely associated with stress. Future studies could explore this relationship in more depth to better understand how automatic thinking patterns influence stress responses. To notice that, interpretation of this result should take account to possible limitations in the design of the *Automatic Thinking Questionnaire-Negative*, which participants re-

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flect large amount of statements with "repeated" meaning can leads to biases of selecting extreme options (e.g., predominantly choosing "5"). The high standard deviation on ATN also show its potential unreliability to some extent, and it would be advisable to revise the questionnaire design in future studies to mitigate this issue.

Other limitations of this study can include the sampling method which is by self selection, and participants were were predominantly students from high schools in southern coastal regions of China, limiting the geographic diversity of the sample and decreases some generalizability to a broader population. Furthermore, the relatively high *Socioeconomic Status (SES)* of these students diminishes the external validity of the findings. Future study can develop a more representative sample by using random sampling method. Participants can be selected randomly from a broader pool of population. Also, a broader regional representation can be achieved by including respondents from various regions (e.g., northern, western, rural, urban areas) to ensure a more geographically diverse sample. Future study, if possible, should also control for *SES* by ensuring a more balanced representation of respondents from varying socioeconomic and educational background. Therefore, future scholars would be more likely to produce finding that can be generalized to a broader, more diverse population.

Ethical concerns in this study are minimal, as no experimental interventions were carried out. Informed consent was provided to all participants in accordance with ethical guidelines. Researchers minimize the potential uneasy feelings or discomforts by using online questionnaire process, while it also raises potential concerns about participant engagement and the possibility of incomplete or nonchalant responses, which could influence the accuracy of the data.

The variables of stressors, meaning in life, and personality traits such as internal locus of control merit further exploration. Future studies, particularly those based on the framework of resilience or hardiness, could provide additional insights into how these factors interact and contribute to well-being. Also, scholars are advised to further explore the relationship of Automatic Thinking Style and Stressors in more depths with constructs of self-esteem and learned helplessness. Finally, cross-cultural studies are strongly suggested to investigate the different interplay of Perceived Meaning of Life and Negative Automatic Thinking in stress-happiness relationship, and it's also imperative for revealing how cultural contexts can affect the interpretation on challenge or Hindrance stressors, or more generally, the characteristics of stressors. To conclude, further mechanisms on stress, life meaning, thinking styles (or schemas) and happiness awaits future studies.

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