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Stress and Decision-Making at Workplace: Investigating the Moderating Effect of Personality Traits

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Abstract: Today in this competitive world people dealing with stress at work is common and thus finding out stress reduction factors becomes critical. This paper checks the moderating effect of Personality Traits on the relationship between 'Work Stress' and 'Decision-Making'. The five big personality traits have been measured: Agreeableness, Neuroticism, Extraversion, Conscientiousness, and Openness to Experience as personality factors. The research digs into the complex interplay between work stress, personality traits and decision-making effectiveness based on the extensive prior literature and empirical evidence.

The data were collected from 263 professionals across diverse industries in Taiwan, employing a structured survey-based methodology. A quantitative research methodology has been used and statistical data have been analysed using SPSS 27.0 and SmartPLS 4.1.

The findings highlight that work stress negatively affects decision-making quality, with personality traits such as neuroticism playing a pivotal moderating role. While traits like agreeableness, conscientiousness, extraversion and openness to experience show their indirect moderating effect, however, low neuroticism buffers against stress, enabling better decision-making under pressure, additionally, high neuroticism exacerbates stress's detrimental effects. These insights provide a deep understanding of how personality factors influence decision-making processes in high-stress environments.

The contribution of this study extends the stress-decision-making framework by incorporating personality traits. It also offers practical implications, especially for decision-makers to manage the stressful situations at their workplace and manage their talent by understanding individuals' personality traits.

Keywords: Decision-making, Work Stress, Personality traits, Workplace, Big-Five Model, Neuroticism

1. Introduction

Decision-making is a critical component of daily life, shaping the outcomes of personal, professional, and organizational contexts. It involves selecting a course of action from multiple alternatives, based on the careful consideration of available information, preferences, goals, and constraints (Newell et al., 2022). The decision-

making processes span from mundane, everyday decisions to complex, high-stakes choices that impact broader organizational or societal outcomes (Fiedler & Salmen, 2021).

In today's dynamic and often stressful work environments, decision-making processes are frequently conducted under conditions of stress, making it essential to understand how stress impacts decision quality. Numerous factors influence decision-making under stress, including individual characteristics such as personality traits (Dilawar et al., 2021; Nasir & Nawaz, 2024). This study investigates the moderating effects of personality traits on the relationship between work stress and decision-making. It aims to explore how individual characteristics influence the decision-making process under stress, highlighting the distinct roles of each factor of personality traits.

Work-related stress has long been recognized as a critical factor that impairs cognitive performance and decision-making ability. Higher level of stress can disrupt focus, cause emotional reactivity, and lead to cognitive overload, thereby reducing the capacity to make well-considered decisions (Ganster & Rosen, 2013; X. Liu et al., 2023). Under stress, individuals may become prone to impulsivity or indecision, resulting in suboptimal decision outcomes (Anderson, 2022). The relationship between work stress and decision-making is particularly important in high-pressure environments where quick yet accurate decision-making is essential, such as in management, healthcare, or emergency response situations (Cameron, 2024). To better understand how decision-making is affected by stress, it is important to consider individual differences, particularly personality traits, which have been found to moderate stress responses and decision-making efficacy.

Personality traits, as conceptualized by the Big Five model—neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness—are stable characteristics that influence how individuals process information and respond to stress (McCrae & Costa, 2003). neuroticism, characterized by emotional instability, has been linked to heightened stress reactivity and impaired decision-making under pressure. Individuals with high levels of neuroticism tend to exhibit anxious behaviors, leading to poorer cognitive performance in stressful situations (Luo et al., 2023; Şahin & Çetin, 2017). In contrast, those high in conscientiousness are more likely to engage in methodical, goal-directed decision-making processes, even under stress. Research has demonstrated that conscientious individuals tend to remain focused on tasks, effectively managing stress and maintaining decision quality (Cameron, 2024; Judge & Ilies, 2002a). Similarly, extraversion has been associated with more effective stress management, as extraverts are often more resilient in social and work settings, enabling them to make decisions more confidently and efficiently under pressure (Xu et al., 2023). However, a gap remains in the literature regarding their moderating effects, do individuals with a high personality trait (any one of five traits) have motivating support while making effective decisions under pressure or stressed situations at the workplace, or do a person with a high (let assume, extraversion or any other) personality trait make a better decision than a person with a low extraversion personality traits or whether these traits moderate the relationship between work stress and decision-making or not.

More Importantly, the research area is Taiwan, a small and beautiful but developed country that leads the world in some industries (such as the global leader in the semiconductor industry), its industries operate within a highly competitive global market, often necessitating high-pressure environments that demand effective decision-making. Furthermore, as an Asian country, Taiwan's collectivist cultural orientation, which emphasizes group harmony and interdependence, may influence how employees experience and manage work stress compared to individuals in more individualistic cultures (Hofstede, 1980). Since existing literature has primarily focused on Western contexts, leaving a significant gap in understanding these dynamics within Taiwanese industries. By addressing this gap, the study contributes to cross-cultural research on work stress and decision-making, offering nuanced insights that can guide organizational policies and practices in Taiwan

and similar cultural settings.

This research provides a definite understanding of the relationship between stress and decision-making with their moderating factors. Besides, the findings on the moderating influence of personality traits support the supervisors and managers at their workplace while choosing a suitable team for difficult, demanding or stressful projects. it also directly helps the new acquisition, and talent managers while recruiting and identifying employees for challenging positions. Although nowadays, it is common for corporate organizations to require candidates to complete personality trait assessments during job interviews, this study presents a new approach to enhance the screening or selection exercises.

2. Literature Review and Theoretical Development

Work stress is a common issue in organizational settings, significantly impacting cognitive performance, health, and overall job satisfaction (Beehr, 2019; Sonnentag & Frese, 2003). Work stress, arising from factors such as workload, ambiguity in roles, and pressure to meet performance expectations, can hinder cognitive functioning necessary for effective decision-making (Amri et al., 2021; Wahjoedi, 2023). Decision-making in stressful contexts involves cognitive biases, reduced attention, and impaired judgment (Almazrouei et al., 2023; Hunt et al., 2024; Molins et al., 2024). Cognitive depletion theory explains that excessive stress drains cognitive resources, leading individuals to make quick, heuristic-based decisions instead of engaging in systematic evaluation (S. Liu & Zhang, 2023). This theoretical perspective indicates that stress compromises attention and information processing capacity, resulting in less thorough and less accurate decisions (Baradell & Klein, 1993). There are plenty of studies in different field supporting the negative impact of work stress on decision making, (Y. Liu et al., 2024) found that stress negatively impacts decision-making by enhancing negative emotions and diminishing positive emotions, leading to reduced cognitive resources for evaluating positive outcomes. However, it did not significantly affect risk preference or the timing of choices. Moreover, (Prell & Starcke, 2023) uncovered that the high levels of perceived stress negatively impact decision-making among emergency service personnel, leading to fewer utilitarian and altruistic decisions in moral dilemmas, particularly in sacrificial and everyday scenarios. Furthermore, according to (Sarmiento et al., 2024), stress negatively impacts decision-making by introducing complexities such as the nature of stressors, individual psychobiological profiles, and contextual factors, ultimately affecting cognitive processes essential for survival and leading to inconsistent decision outcomes. Also, based on (Adya & Phillips-Wren, 2020), work stress negatively impacts decision-making as perceived stress influences decision-makers' use or misuse of decision support systems, ultimately affecting decision quality and leading to suboptimal outcomes despite the potential benefits of decision support systems.

Similarly, (Hejase et al., 2017) and (Hohman et al., 2019) both found that work stress negatively impacts decision-making by causing managers to make poorer decisions and leading individuals to prioritize certainty over potential economic gains, underscoring the importance of stress reduction strategies.

Almost all studies have predominantly focused on the negative implications of stress on decision-making, often categorizing all forms of stress as detrimental. However, (Byun & Seo, 2020) challenge this notion by differentiating between disturbing and challenging stress, suggesting that not all forms of job stress adversely impact decision-making in enterprisers.

Based on upper discussed literature hypothesis 1 has been proposed as below,

Hypothesis 1: Work stress negatively impacts decision-making.

2.1 Personality Traits as Moderators of Work Stress and Decision-Making

The Big Five personality model (Mccrae & Costa, 1987) provides a well-established framework to understand how specific traits impact stress resilience and cognitive functioning under pressure. Previous studies have shown that personality traits serve as critical influencing factors influencing individuals' reactions to stress and their decision-making capabilities (Mendes et al., 2019; Starcke & Brand, 2012).

2.1.1 Agreeableness and Decision-Making under Stress

Agreeableness, a key personality trait, is fundamentally characterized by empathy, cooperativeness, and interpersonal sensitivity (Kallianou, 2024). Study on moderation effect of personality traits by (Nazaruddin et al., 2017) indicates that agreeableness weakens the effect of job stress on dysfunctional audit behaviour, suggesting it may positively influence decision-making under stress by reducing negative outcomes associated with high job stress. (Irfan et al., 2024) also support that agreeableness significantly influences it by weakening the negative impact of work stress. Similarly, (Eschleman et al., 2015) suggest that high-agreeableness workers may cope more adaptively under stress. Current literature on agreeableness indicates limited studies addressing this personality trait's capacity to moderate work-related stress and decision-making. Nonetheless, empirical evidence from diverse contexts suggests that agreeableness may significantly mitigate stress. Therefore, it is vitally important to thoroughly examine the moderating effects of agreeableness on these relationships.

Hypothesis 2a: Agreeableness has a positive or negative moderating effect on decision-making under stress.

2.1.2 Neuroticism and Decision-Making under Stress

Neuroticism, which is marked by emotional instability, anxiety, and vulnerability, has a substantial impact on stress susceptibility and decision-making (He et al., 2021; Hill et al., 2020; Zhu et al., 2023). Although a variety of studies have focused on the relationship between neuroticism personality traits and decision-making as well as stress, only a few studies have examined the moderating role of decision-making under stress. Studies such as (Hengartner et al., 2017; Luo et al., 2023; Şahin & Çetin, 2017) support the idea that neuroticism negatively moderates the relationship between work stress and decision-making, resulting in more pronounced stress-induced decision-making errors.

Moreover, one recent research on young adults shows that neuroticism had a moderating role in the relationship between stress and decision-making, indicating that higher levels of neuroticism can negatively impact decision-making abilities under acute stress (Yilmaz & Kafadar, 2022). Another study (Nilsen et al., 2024) found that neuroticism negatively moderates the relationship between extraversion and both general and inhibitory self-control, as well as between conscientiousness and both general and initiatory self-control, suggesting a detrimental influence on decision-making under stress. Although more support exists for the negative moderating role of neuroticism however there is one paper (Zhu et al., 2023) that indicates that neuroticism has a positive moderating effect on decision-making in stressful situations, but it is only in a particular condition when there are changes in brain activation in specific regions during risk-taking tasks. The existing literature helps in proposing a hypothesis as mentioned-below.

Hypothesis 2b: Neuroticism has a positive or negative moderating effect on decision-making under stress.

2.1.3 Extraversion and Decision-Making under Stress

Extraversion, which is associated with sociability, assertiveness, and high energy, presents both benefits (Hengen & Alpers, 2021; Kreitler et al., 2009; Wise et al., 2015) and drawbacks (Wilmot et al., 2019; Wilt, 2022) for decision-making under stress. Literature indicates extraversion has a nuanced moderating effect on decision-making under stress. Extraverts are often more resilient to stress and display optimism, which can enhance cognitive performance in high-pressure situations (Mccrae & John, 1992). (O'Riordan et al., 2023) suggesting that extraversion may have a positive moderating effect on decision-making under stress by potentially reducing physiological stress responses. This study is to fill the gap of study on this personality traits as a moderator, thus proposed below hypothesis,

Hypothesis 2c: Extraversion has a positive or negative moderating effect on decision-making under stress.

2.1.4 Conscientiousness and Decision-Making under Stress

Conscientiousness has been characterized by diligence, dependability, and strong organizational skills, and has consistently been linked with positive outcomes in work performance and decision-making (Roberts et al., 2009). The existing literature suggests that conscientiousness positively moderate the relationship between Work stress and decision-making. (Nurtamami et al., 2023) found that conscientious individuals exhibit lower levels of academic stress, which correlates with better decision-making capabilities during high-pressure situations, such as thesis writing. Furthermore, conscientiousness has been shown to mitigate the negative effects of stress (Barrick et al., 2001) on sleep quality, suggesting that these individuals experience less sleep fragmentation and better recovery after stressful days (Quaedflieg et al., 2024). Additionally, in workplace settings, conscientiousness is linked to improved job performance, particularly when job stress is high, indicating that conscientious employees can navigate stressors effectively, thereby enhancing their decision-making processes (Ye et al., 2023). Another study (Abbas & Raja, 2019) indicates that conscientiousness acts as a double-edged sword; while high conscientiousness helps maintain performance under stress, it also increases turnover intentions when facing challenge stressors, suggesting a complex relationship rather than a straightforward positive effect on decision-making. Collectively, these findings underscore the role of conscientiousness as a moderating factor that facilitates better decision-making under stress.

Hypothesis 2d: Conscientiousness has a positive or negative moderating effect on decision-making under stress.

2.1.5 Openness to Experience and Decision-Making under Stress

Another personality trait, Openness to experience, encompasses creativity, curiosity, and a preference for variety and novelty (Mccrae & Greenberg, 2014). This trait may help individuals adapt to new and complex situations by encouraging flexible thinking, which can aid decision-making under stress. However, an excessive inclination toward novel solutions or unconventional approaches may introduce risk or uncertainty, particularly in high-stress situations where consistency and reliability are preferred (George & Zhou, 2001). Therefore, the impact of openness on decision-making under stress can be either positive or negative depending on the nature of the stressor and the situational context (Mccrae, 1987).

For instance, higher levels of openness can enhance problem-solving capabilities and decision-making competence, particularly in contexts where individuals may feel bored or disengaged, thereby mitigating negative impacts on confidence and performance (Preez et al., 2020). Conversely, in situations characterized by abusive supervision, openness to experience has been shown to correlate negatively with knowledge hiding, indicating that individuals with higher openness may be less likely to engage in counterproductive behaviours under stress (Tufail et al., 2024). Additionally, openness can influence trust behaviour, suggesting that in weak

situational contexts, individuals with higher openness may initially exhibit lower trust, which could complicate decision-making processes under stress (Hendarsjah, 2023). However, (Singh & Ram, 2016) clarify that Openness to experience is associated with the use of problem-focused coping strategies, suggesting a positive moderating effect on decision-making under stress. Individuals high in openness are less likely to feel threatened by environmental changes, enhancing their decision-making capabilities.

Overall, the literature indicates that openness to experience can be moderated both negatively and positively and may be more context-dependent (Bouazzaoui et al., 2024; Sanatkar & Rubin, 2020). Thus, below hypothesis been proposed,

Hypothesis 2e: Openness to experience has a positive or negative moderating effect on decision-making under stress.

Overall, the author proposes the below research model (**Figure 1)**.

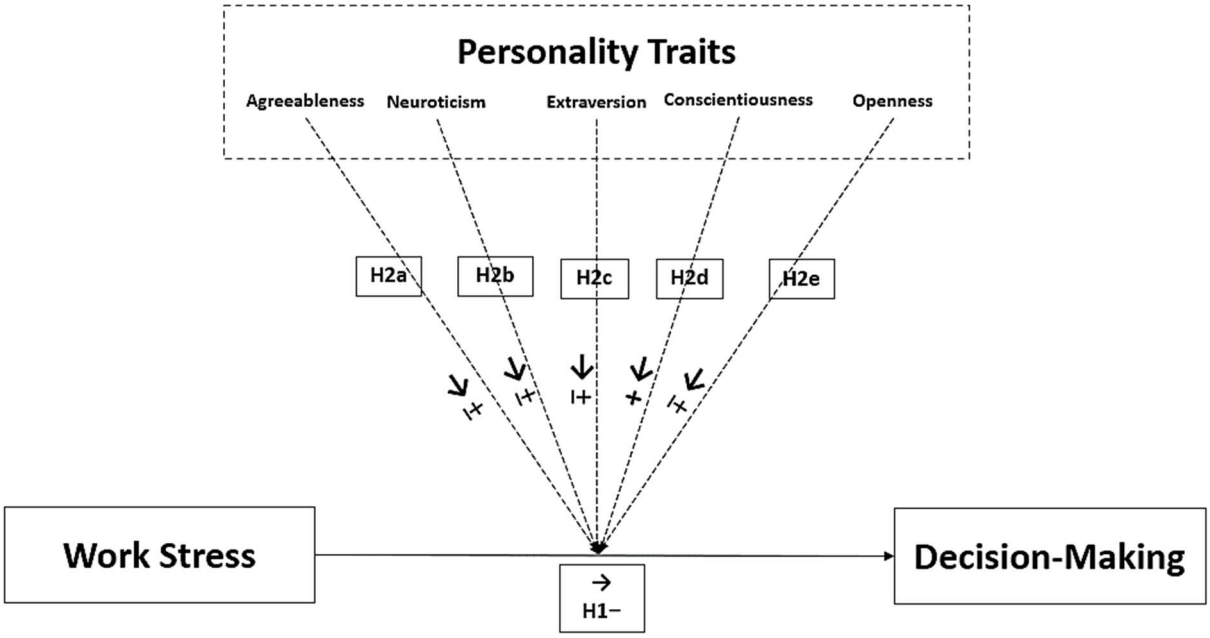

Figure 1 Research Framework of this study (Created by Author)

3. Methodology

This study follows quantitative data analysis techniques, the data collected from the participants was analysed with SPSS 27.0 and SmartPLS 4.1 software. Confirmatory factor analysis (CFA) and reliability test (Cronbach's Alpha (α)) has been done to validate the items. To measures the relationship between of all variables Pearson bivariate correlation has been performed and regression analysis has been done to check the direct impact of stress on decision-making. Finally, moderation analysis has been examined using structural equation modeling (SEM) analysis. All the analyses were performed at 95% confidence intervals.

3.1 Samples and Measures

The convenience sampling technique was used to collect the data through various online social media platforms such as Facebook, Line, etc., and over personal email IDs between January 2024 and May 2024.

The survey was limited to the people who work in Taiwan only, including Taiwanese and foreigners. Samples are broadly open to the different industries to match with research objective to understand the everyday stress and decision-making mechanism of general people life who is working in Taiwan.

The research used a questionnaire-based approach to assess people who are working in Taiwan to understand their perceptions of stress and Decision-making and moderating factors. The questionnaire had 29 items, each rated on a five-point Likert scale, where 1 indicating strongly disagree to 5 indicating strongly agree, this survey also includes participants' demographic information, such as gender, nationality, age, education, industry, job position and income. Questionnaires were distributed in English language and translated into Mandarin (Chinese) for those who prefer Mandarin instead of English for their better understanding. Personality traits have been assessed using validated scales such as the Big Five Inventory (BFI). The questionnaire items included 6 questions for Work Stress, 10 for Personality traits, and 6 questions for decision-making. A total of 280 samples were collected where 17 samples were eliminated due to missing data, leaving a final sample size to 263.

3.2 Item validation and Factor Analysis

The Work Stress Measure has been adapted from previous research by (Lait & Wallace, 2002) and includes the following items: "I feel overwhelmed by my work (WS1)", "I feel like giving up on my job (WS2)," "I feel unable to escape from my work (WS3)", and "I feel frustrated with my work (WS4)". Additionally, two items were adapted from the research work of (Karakaş & Tezcan, 2019). "I am experiencing a significant amount of stress in my work (WS5)" and "Issues related to my work are impacting my sleep quality (WS6)." The Factor Analysis results (**Table 1**) demonstrate that the factor loadings for these six items range from 0.608 to 0.744.

The Personality Traits Measure has been adapted from (Rammstedt & John, 2007) validated Big Five Inventory items, they created Big Five Inventory-10 (BFI-10) which has been applied in this research and including items are: "I see myself as someone who is reserved (PT1)", "I see myself as someone who is generally trusting (PT2)", "I see myself as someone who tends to be lazy (PT3)", "I see myself as someone who is relaxed and handles stress well (PT4)", "I see myself as someone who has few artistic interests (PT5)", "I see myself as someone who is outgoing, sociable (PT6)", "I see myself as someone who tends to find fault with others (PT7)", "I see myself as someone who does a thorough job (PT8)", "I see myself as someone who gets nervous easily (PT9)", and "I see myself as someone who has an active imagination (PT10)". As per (Rammstedt & John, 2007) distribution Items PT5 and PT10 represent openness to experience, similarly, items PT1 and PT6 represent extraversion, items PT9 and PT4 are for neuroticism, Items PT2 and PT7 denote agreeableness and Items PT3 and PT8 represent conscientiousness. The factor analysis results indicate that the factor loadings for the 10 items range from 0.428 to 0.794. Except for item PT2 (0.428) and item PT8 (0.443), all loadings are above 0.5. Since these items are validated by (Rammstedt & John, 2007) and each personality trait factor consists of only two items, items with factor loadings between 0.4 and 0.5 were retained rather than deleted. Previous studies indicate that a factor loading threshold of 0.4 is acceptable when theoretical importance or model stability justifies retaining items with moderate loadings. Keeping items with loadings as low as 0.4 can enhance model completeness and preserve theoretical constructs, especially in models validated with limited-item factors (Awang et al., 2015; Hair Jr et al., 2020; Ximenez, 2016).

Table 1 Factor loading and Descriptive analysis result

Variables	Items	Factor Loading	Mean	SD	Variance	KMO
Work Stress	WS1	0.660	2.62	1.149	1.321	0.809
	WS2	0.703	2.55	1.292	1.668	
	WS3	0.702	2.99	1.339	1.794	
	WS4	0.744	2.52	1.201	1.441	
	WS5	0.699	3.02	1.237	1.530	

	WS6	0.608	2.81	1.368	1.872	
Openness to Experience	PT5	0.763	2.58	1.236	1.527	0.630
	PT10	0.754	2.29	1.084	1.174	
Extraversion	PT1	0.794	3.28	1.147	1.316	
	PT6	0.588	2.62	1.217	1.481	
Neuroticism	PT4	0.603	3.13	1.154	1.332	
	PT9	0.713	2.80	1.233	1.520	
Agreeableness	PT2	0.428	2.92	1.224	1.498	
	PT7	0.560	2.44	1.134	1.286	
Conscientiousness	PT3	0.717	2.68	1.225	1.501	
	PT8	0.443	2.26	1.068	1.141	
Decision-Making	DM1	0.603	3.75	0.984	0.969	0.777
	DM2	0.607	3.90	0.885	0.784	
	DM3	0.698	3.44	1.082	1.171	
	DM4	0.644	3.97	0.928	0.862	
	DM5	0.624	3.59	1.168	1.364	
	DM6	0.650	3.56	1.089	1.186	

Moreover, to measure Decision-Making, items have been adapted from (Sanz de Acedo Lizarraga et al., 2009), and items are: “I plan the actions to be performed (DM1)”, “I monitor all the phase of the decision process (DM2)”, “I control my impulsiveness throughout the decision (DM3)”, “I gather as much information as possible about the decision (DM4)”, “I recall previously used decision strategies (DM5)”, “I relate the highest number of aspects of the decision (DM6)”. Factor Analysis result show factor loading range from 0.603 to 0.698.

4. Results

4.1 Correlation between variables

A Pearson correlation coefficient was computed to assess the relationship between work stress, personality traits, and decision-making which are presented in **Table 2.**

Table 2 Result of Pearson's Correlation

Variables	**M**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**8**
Work Stress	2.752	0.867	—						
Openness to experience	2.432	0.876	0.171 **	—					
Extraversion	2.949	0.833	0.088	0.140 *	—				
Neuroticism	2.962	0.880	0.248 ***	0.238 ***	0.186 **	—			
Agreeableness	2.683	0.912	0.267 ***	0.164 **	0.098	0.266 ***	—		
Conscientiousness	2.471	0.852	0.236 ***	0.292 ***	0.121 *	0.284 ***	0.278 ***	—	

Variables	M	SD	1	2	3	4	5	6	8
Decision-Making	3.701	0.654	-0.267***	-0.025	0.083	-0.205**	-0.023	-0.136*	—

Significant correlations were observed between work stress and various personality dimensions. Specifically, work stress was positively correlated with neuroticism ($r = 0.248$, $p < .001$) and agreeableness ($r = 0.267$, $p < .001$) and statistically both are significant, indicating that higher levels of these traits are associated with increased work stress.

Additionally, a significant positive correlation was found between work stress and conscientiousness ($r = 0.236$, $p < .001$), suggesting that individuals with higher conscientiousness may also experience greater work stress. Conversely, decision-making showed a moderate negative correlation with work stress ($r = -0.267$, $p < .001$), indicating that Higher work stress are associated with less effective decision-making skills.

Table 3 Frequency Analysis result of samples

Factors	Category	Frequency	Percent	Cumulative Percent
Gender	Male	110	41.8	41.8
	Female	153	58.2	100.0
	Total	263	100.0	
Nationality	Taiwanese	168	63.9	63.9
	Indian	54	20.5	84.4
	Other	41	15.6	100.0
	Total	263	100.0	
Age	25 years or below	56	21.3	21.3
	26-35 years	76	28.9	50.2
	36-45 years	71	27.0	77.2
	46-55 years	40	15.2	92.4
	56 years or above	20	7.6	100.0
	Total	263	100.0	
Education	High School or above	48	18.3	18.3
	Undergraduate or Equivalent	115	43.7	62.0
	Postgraduate or Equivalent	79	30.0	92.0
	Ph.D. or Equivalent or above	21	8.0	100.0
	Total	263	100.0	
Industry	Service	108	41.1	41.1
	Manufacturing	64	24.3	65.4
	Technology	20	7.6	73.0
	Academic	42	16.0	89.0
	Others	29	11.0	100.0
	Total	263	100.0	
Job title	Student/Freelance	30	11.4	11.4

	General Employee	134	51.0	62.4
	Manager/Assist. Professor	48	18.3	80.6
	Director/Reader/Professor	19	7.2	87.8
	CEO/Principal/President	29	11.0	98.9
	Other - Householder or else	3	1.1	100.0
	Total	263	100.0	
Income	NTD 35,000 or below	82	31.2	31.2
	35,001 to 55,000	106	40.3	71.5
	55,001 to 75,000	38	14.4	85.9
	75,001 to 1,00,000	30	11.4	97.3
	1,00,001 or above	7	2.7	100.0
	Total	263	100.0	

In terms of personality traits, openness to experience and extraversion had weak positive correlations with work stress ($r = 0.171$, $p < .01$; $r = 0.088$, $p < .05$, respectively), whereas neuroticism remained the strongest positive predictor.

Moreover, decision-making abilities were found to be significantly related to neuroticism ($r = -0.205$, $p < .01$) and agreeableness ($r = -0.172$, $p < .01$), indicating that lower levels of these traits may facilitate better decision-making processes. Overall, these findings underscore the complex interplay between personality traits, work stress and decision-making, highlighting the importance of these factors in understanding workplace dynamics.

Error! Reference source not found. shows the result of the 'Frequency Analysis' of the samples, out of 263 final r espondents, 58.2% of them were female and 41.8% were male, with a majority being Taiwanese (63.9%), followed by Indian (20.5%) who are working in Taiwan and other nationalities (15.6%) working in Taiwan. The age distribution indicates that most participants are within the younger to middle-aged brackets, with 28.9% (N = 76) aged between 26-35 years, 27.0% (N = 71) aged 36-45 years, and 21.3% (N = 56) aged 25 years or below. Fewer respondents fall into the older age groups, with 15.2% (N = 40) between 46-55 years and only 7.6% (N = 20) aged 56 years or above. Regarding education, the data shows that a significant portion of the sample is well-educated. The largest educational group consists of respondents with an undergraduate degree or equivalent, comprising 43.7% (N = 115) of the sample. This is followed by those with a postgraduate degree or equivalent, representing 30.0% (N = 79). Those with a high school diploma or equivalent account for 18.3% (N = 48), while a smaller portion of the sample, 8.0% (N = 21), holds a Ph.D. or higher qualification. This distribution shows that the respondents generally have a strong educational background, with a notable emphasis on higher education qualifications.

Industry-wise, the service sector employs the largest portion of respondents, making up 41.1% (N = 108) of the sample. The manufacturing industry follows with 24.3% (N = 64), and academia is represented by 16.0% (N = 42). The remaining respondents are spread across technology (7.6%, N = 20) and other industries (11.0%, N = 29). Job roles are varied, with a majority in general employee positions (51.0%, N = 134), and a smaller yet notable percentage working as managers or assistant professors (18.3%, N = 48). In terms of income, 40.3% (N = 106) of respondents earn between NTD 35,001 and 55,000, while 31.2% (N = 82) earn NTD 35,000 or below. The Higher income brackets are less common, with 14.4% (N = 38) earning between NTD 55,001 and 75,000, 11.4% (N = 30) between NTD 75,001 and 100,000, and only 2.7% (N = 7) earning above NTD 100,001.

This income distribution suggests that most respondents fall within low to middle-income ranges, reflecting a

workforce that is diverse in job roles, industries, and educational backgrounds.

4.2 Regression Test result

The current study sought to examine the impact of work stress on decision-making abilities among employees (individuals). A simple linear regression analysis was conducted with work stress as the independent variable and decision-making as the dependent variable, referring to the regression model in **Figure 2**.

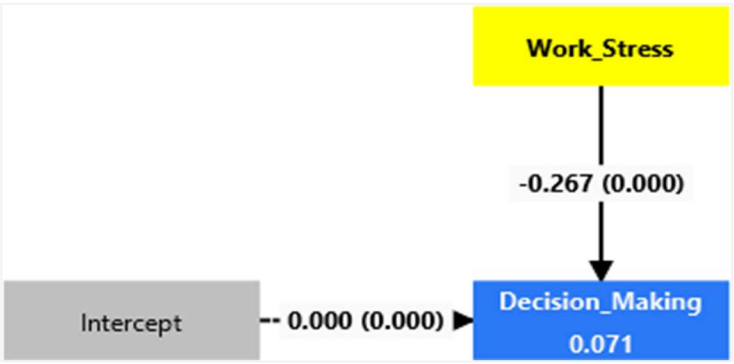

Figure 2 Regression Graph - Direct impact of Work Stress on Decision-Making (analysed by SmartPLS 4.1)

The model produced an R-squared value of 0.071, indicating that approximately 7.1% of the variance in decision-making can be attributed to work stress, see **Table 4**. The adjusted R-squared value was 0.068, suggesting a comparable level of explanatory power when accounting for model complexity. The Durbin-Watson statistic was 2.084, which falls within the acceptable range (1.5 to 2.5), indicating no significant autocorrelation in the residuals and thus supporting the validity of the regression model.

Table 4 Result of Regression analysis showing direct effect of work stress on decision-making

Independent Variable	**Unstandardized (B)**	**Standardized (B)**	**T value**	**P value**
Work Stress	-0.202	-0.267	4.482	0.000
Intercept	4.257	0	32.791	0.000
R-square	0.071			
R-square adjusted	0.068			
Durbin-Watson test	2.084			

The findings indicate a statistically significant negative relationship between work stress and decision-making. Specifically, the unstandardized coefficient (B) Value for work stress was -0.202, and the standardized coefficient (β) was -0.267, with a t-value of 4.482 and a p-value of 0.000 ($p < 0.001$). This demonstrates that as work stress increases, decision-making capacity or skill decreases, providing support for Hypothesis 1.

In conclusion, the study provides empirical support for the hypothesis that work stress adversely affects decision-making abilities. While the R-squared value indicates that work stress explains only a small proportion of the variance in decision-making, the significant relationship underscores the practical implications of managing work stress to enhance cognitive functions in organizational settings. These findings contribute to the growing body of research on occupational stress and cognitive performance, suggesting that interventions aimed at reducing work-related stress could foster better decision-making outcomes among employees.

4.3 Personality Traits as a Moderator

A model has been presented to examine the moderating effect of personality traits including openness to experience, extraversion, neuroticism, agreeableness, and conscientiousness between work stress and decision-

making, please see **Figure 3**.

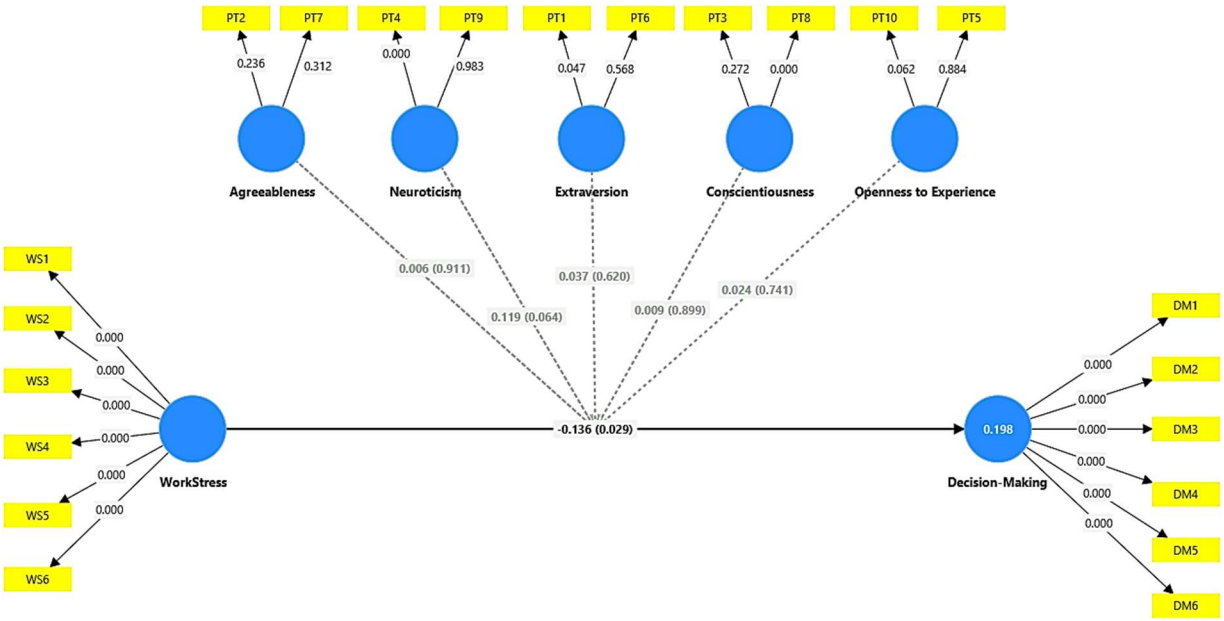

Figure 3 Moderation Result of Personality Traits on Decision-Making under Stress (analysed by SmartPLS 4.1)

Refer to the result data shown in **Table 5**, R-squared value of 0.198, indicating that approximately 19.8% of the variance in decision-making can be explained by work stress and the personality traits.

The adjusted R-squared value is 0.163, reflecting the explanatory power of the model while accounting for its complexity. Cronbach's Alpha for reliability was 0.708, which is acceptable for exploratory research, suggesting moderate internal consistency among the variables. The direct path between work stress and decision-making was statistically significant, with a coefficient of -0.136, a t-value of 2.190, and a p-value of 0.029 ($p < 0.05$). This finding indicates that higher levels of work stress are associated with a decrease in decision-making ability.

Table 5 Result data of Moderation analysis, showing moderating effect of Personality Traits

Moderation Path	**Coefficients**	**T-Value**	**P values**
Work Stress -> Decision-Making	-0.136	2.190	0.029
Agreeableness -> Decision-Making	-0.109	0.756	0.450
Neuroticism -> Decision-Making	-0.238	3.195	0.001
Extraversion -> Decision-Making	0.128	1.457	0.145
Conscientiousness -> Decision-Making	-0.1	1.190	0.234
Openness -> Decision-Making	-0.011	0.091	0.928
Agreeableness x Work Stress -> Decision-Making	0.006	0.111	0.911
Neuroticism x Work Stress -> Decision-Making	0.119	1.853	0.064
Extraversion x Work Stress -> Decision-Making	0.037	0.496	0.620
Conscientiousness x Work Stress -> Decision-Making	0.009	0.126	0.899
Openness x Work Stress -> Decision-Making	0.024	0.330	0.741
R-Square	**0.198**		
△ R Square [Adjusted]	0.163		

Cronbach's Alpha	0.708

Among the personality traits, neuroticism had a significant negative relationship with decision-making (β = -0.238, t = 3.195, p = 0.001), suggesting that individuals with higher levels of neuroticism may experience more significant impairments in decision-making under stress. Other traits, such as openness, extraversion, agreeableness, and conscientiousness, did not show significant direct effects on decision-making.

Furthermore, the moderation analysis result indicates none of the interactions between work stress and the personality traits were statistically significant. The interaction such as agreeableness X Work Stress (β = 0.006, p = 0.911), extraversion X work stress (β = 0.037, p = 0.620), conscientiousness X Work Stress (β = 0.009, p = 0.899), openness X work stress (β = 0.024, p = 0.741), and also neuroticism X work stress (β = 0.119, p = 0.064) did not show significant moderation relationship between work stress and decision-making. Although the above result shows that the moderation effect of each of the personality traits is statistically not significant and in general can be interpreted that there is no moderation effect of Personality traits on the relationship between given variables, work stress and decision-making. (Aiken et al., 1991) suggested 'Sample Slope Analysis' as a recommended analysis while performing a Moderation test since it provides additional information about the relationship between variables.

Moreover, some previous researchers found that even though the statistical data does not indicate significance, examining the sample slope graph remains crucial for understanding moderation effects. As per (Dawson, 2014; Robinson et al., 2013) the simple slopes analysis not only allows us to visualize additional information about the relationship between the independent variable (X) and the dependent variable (Y) that varies across different levels of the moderator (Z) but also it reveals nuanced interactions that may not be captured by traditional significance tests, as it highlights the conditional effects of X on Y at specific values of Z (Chen, 2013). Furthermore, the interpretation of these slopes can provide insights into the practical significance of the moderation effect, which is essential for theory development and application in fields such as management and psychology (Jollineau & Bowen, 2023; Kwok et al., 2015). Thus, even in the absence of statistical significance, the sample slope graph serves as a valuable tool for a deeper analysis of moderation.

In this study, while checking the result of moderation we found that neuroticism negatively impacts decision-making however in the moderation testing, the neuroticism X work stress p-value is 0.064 which is near the standard p-value 0.05 as per (Fisher, 1970). Thus, simple slope analysis for neuroticism personality traits becomes crucial here.

The statistical analysis result shows that the interaction of neuroticism × work stress yielded a positive coefficient (β = 0.119, p = 0.064), indicating that as levels of neuroticism increase, the negative impact of work stress on decision-making slightly diminishes. While this suggests a positive moderating effect, the result is marginally insignificant, as the p-value is slightly above the conventional threshold of 0.05. This aligns with prior research suggesting that neuroticism can moderate stress effects on cognitive functions, although the strength and direction of such effects can vary (Judge & Ilies, 2002b; Zhu et al., 2023).

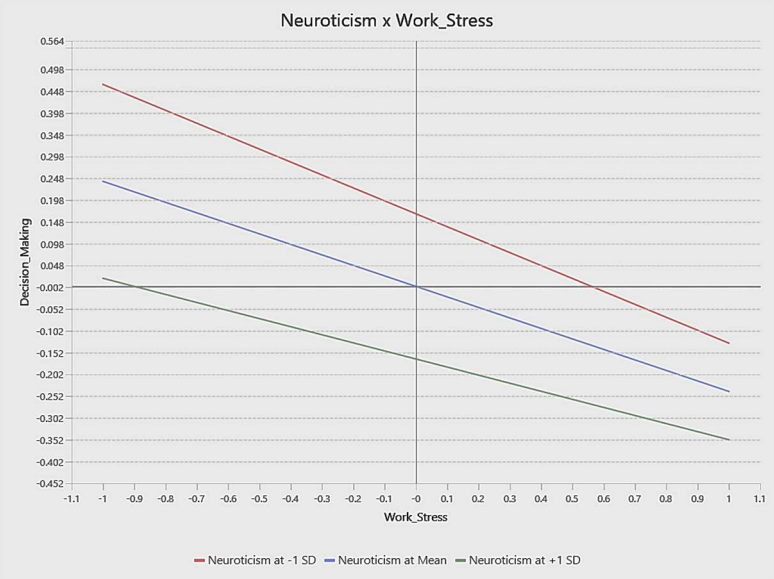

Figure 4 Moderating effect of Neuroticism on the relationship between Work stress and Decision-making (analysed by SmartPLS 4.1)

On the other hand, the graphical analysis represented by the simple slopes plot shows (refer to **Figure 4)** that individuals with high neuroticism (+1 SD) exhibit steeper negative slopes compared to those with low (-1 SD) or average neuroticism. This implies that individuals with higher neuroticism experience greater declines in decision-making performance as work stress increases. Such findings align with the established understanding that neuroticism is associated with emotional instability, which exacerbates stress reactivity and impairs cognitive performance under pressure (Şahin & Çetin, 2017; Ye et al., 2023).

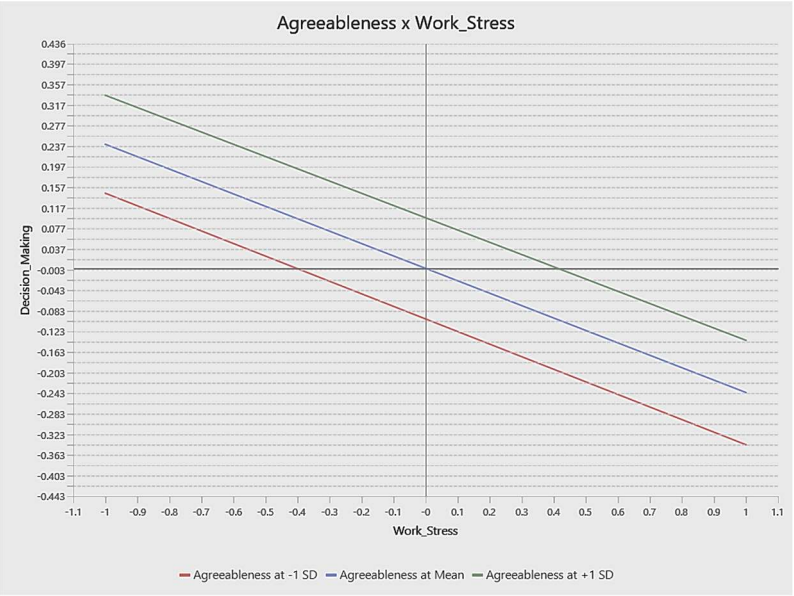

Figure 5 Moderating effect of Agreeableness on the relationship between Work stress and Decision-making

Although the statistical coefficient indicates a positive moderation, the graph reflects the dominant main effects, and it shows that higher neuroticism independently reduces decision-making performance, regardless of stress levels. It means the interaction of neuroticism x work stress positive coefficient suggests that the decline in decision-making caused by stress is slightly less severe for individuals with high neuroticism, but the cumulative

effect of neuroticism and stress remains overwhelmingly negative. Moreover, although all personality traits other than neuroticism are statistically strongly not significant for a deeper understanding of their moderating effect simple slope analysis has been performed.

While the previous data shows that the coefficient of interaction of Agreeableness and work stress is positive but not significant statistically (β = 0.006, p = 0.911) however the simple slope graphical representation in **Figure 5** is indicates that when work stress increases, decision-making performance declines across all levels of agreeableness. It also reveals that individual with higher agreeableness (+1 SD) exhibit a less pronounced negative slope, suggesting that agreeableness buffers the adverse impact of work stress on decision-making. Conversely, those with lower agreeableness (-1 SD) experience a steeper decline in decision-making under increasing stress levels, indicating they are more negatively affected by work stress.

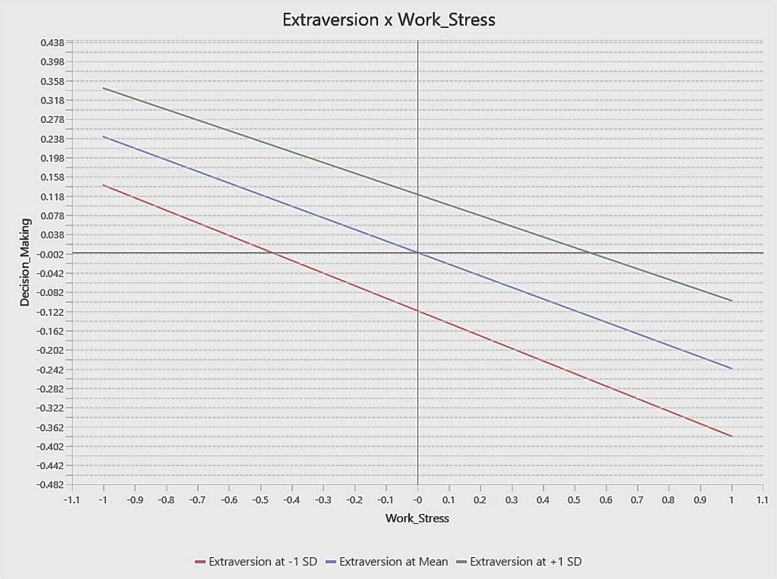

Figure 6 Moderating effect of Extraversion on the relationship between Work stress and Decision-making

Similarly, the simple slope graphical analysis has been for extraversion as well, in **Figure 6** it is easily visible that an individual with higher levels of extraversion (+1 SD), the negative impact of work stress on decision-making is less pronounced, as evidenced by the relatively shallow slope. Conversely, individuals with lower extraversion (-1 SD) exhibit a steeper decline in decision-making as work stress increases, indicating that they are more adversely affected by stress.

Another moderation simple slope graph (refer to **Figure 7**) showing the effect of conscientiousness on decision-making under stress as a moderator admits that when work stress increases, decision-making performance declines across all levels of conscientiousness. However, individuals with higher conscientiousness (+1 SD) exhibit a minor negative slope, suggesting that conscientiousness buffers the adverse impact of work stress on decision-making. Besides, those with lower conscientiousness (-1 SD) experience a steeper drop in decision-making under increasing stress levels, indicating they are more negatively affected by work stress.

Lastly, another **Figure 8**, a simple slope graph showing the impact of openness to experience on the relationship between work stress and decision-making as a moderator. it also suggests similarly that for individuals whose work stress increases, decision-making performance declines in all levels of openness to experience (personality traits). However, individuals with higher openness (+1 SD) exhibit a less pronounced negative slope, suggesting that openness buffers the adverse impact of work stress on decision-making. the other way round, those with lower openness (-1 SD) experience a More intense decline in decision-making under increasing stress levels,

indicating they are more negatively affected by work stress.

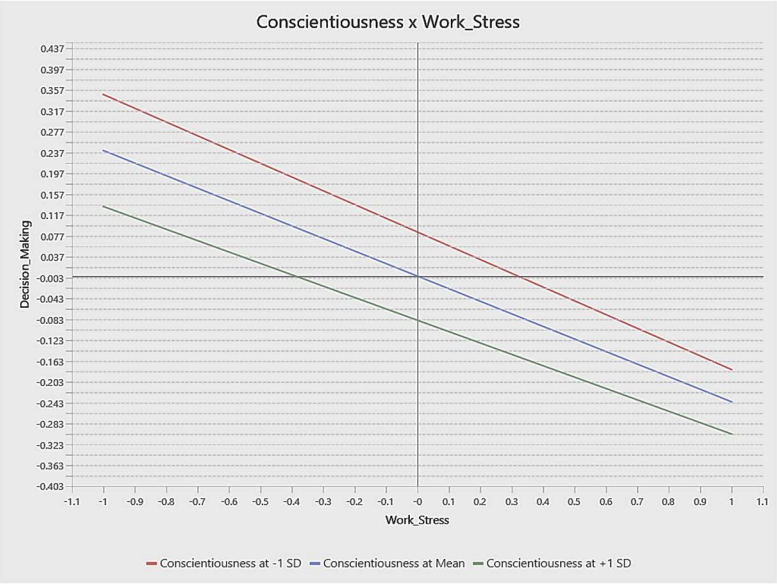

Figure 7 Moderating effect of Conscientiousness on the relationship between Work stress and Decision-making

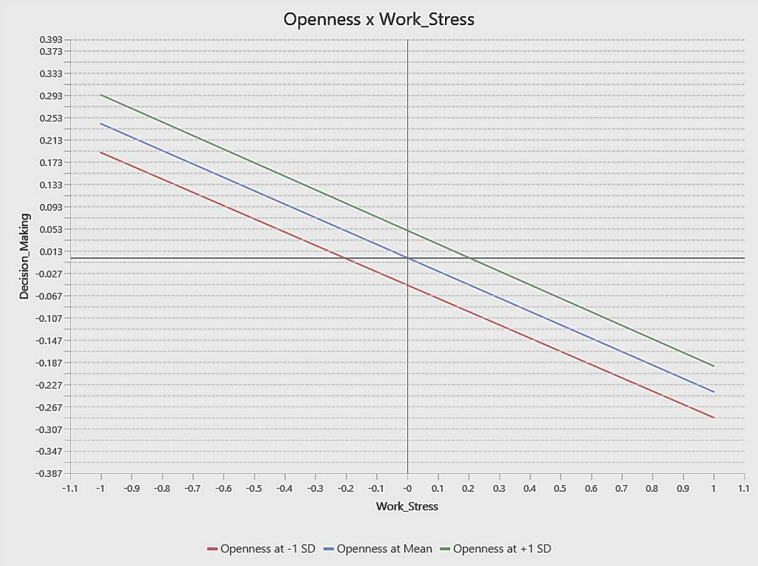

Figure 8 Moderating effect of Openness to experience on the relationship between Work stress and Decision-making

Overall, the graphical representation of the moderation effect of agreeableness, extraversion, conscientiousness and openness to experience are almost similar and reveal that either individual are with high or low personality traits when work stress increases decision-making performance declines in any levels, however, there is a key outcomes that even though for small but there is a positive moderating effect of these personality traits on decision-making when stress increases since it is clear from the previous explanations that a steeper decline in decision-making is showing when the personality traits are low in level in comparison to the high level during increased work stress. So, these graphs denote that even though the p-value is statistically not significant but there is a small moderating effect and these effects could be in indirect way.

5. Discussion

5.1 Summary

The study explores the complex interactions among work stress, decision-making, and personality characteristics, i.e., traits, and thus provides important findings regarding the relationships involved, in the context of employees working in Taiwan. As previously discussed, a number of research studies state that work stress has a negative effect on decision-making, however on the contrary, some authors found that competitive pressure situations can motivate individuals to act quickly, it may not decrease decision accuracy and performance depending on the conditions, for example, monitoring pressure in sports contexts (Soleimani Rad et al., 2022), nevertheless, this study result shows that work stress has a statistically significant and negative effect of work stress ($\beta = -0.267$, $p < 0.001$) on decision-making supporting previous studies (Hejase et al., 2017; Hohman et al., 2019; Y. Liu et al., 2024; Pooladvand & Hasanzadeh, 2023; Prell & Starcke, 2023) and justifying the proposed hypothesis 1.

Furthermore, this result of hypothesis 1 also suggests that for productive and fruitful outcomes at the workplace, it is very important for managers, officers or any decision-makers to find out the key stress-mitigating factors and thus the findings on the investigation of moderating factors become an important study and contribution to the decision-makers. To summarise the findings of the moderation analysis, it can be said that this study came up with the outcome that statistically agreeableness, extraversion, conscientiousness and openness to experience are not significant but as per graphical explanations it may moderate indirectly even for a little moderation but in a positive way. While neuroticism also has the same result statistically and does not suggest a significant moderating effect if we consider accepting its p-value as it is very close to the threshold of 0.05 ($p=0.064$), it shows a positive moderation effect because the beta Value is 0.119, however, it is interesting that the simple slope analysis makes the result crystal clear that high neuroticism intensifies the negative effects of stress on decision-making. Conclusively, we can say all personality traits have moderating effects where neuroticism moderate negatively however others have positive effects even for minors.

Thus, based on the upper Interpretation and justification it can be said that proposed hypothesis 2a, 2b, 2c, 2d and 2e are supported on special circumstances.

Table 6 Hypothesis testing result

Hypothesis	Path or relation	Result	Hypothesis
H1	Work Stress → Negative direct effect on Decision-Making	Significant and Negative	Supported
H2a	Agreeableness as moderator (positive or negative effect) on the relationship between Work stress and Decision-Making	Non-Significant but positive (Minor effect)	Partially Supported
H2b	Neuroticism as moderator (positive or negative effect) on the relationship between Work stress and Decision-Making	Non-Significant but positive (Minor effect)	Partially Supported
H2c	Extraversion as moderator (positive or negative effect) on the relationship between Work stress and Decision-Making	Non-Significant but positive (Minor effect)	Partially Supported
H2d	Conscientiousness as moderator (positive or negative effect) on the relationship between Work stress and	Non-Significant but positive	Partially Supported

	Decision-Making	(Minor effect)	
H2e	Openness to experience as moderator (positive or negative effect) on the relationship between Work stress and Decision-Making	Non-Significant but positive (Minor effect)	Partially Supported

5.2 Theoretical Implications

This study contributes to the growing body of literature on work stress, decision-making, and personality traits by providing a nuanced understanding of their interrelationships in workplace settings. As this study has focused on the employees who are a full-time professional worker in Taiwan only, as per the demographic most participants were local natives and around 36% of people were foreigner Asians, it shows a balanced perspective of local and foreign professionals working in Taiwan. Most importantly, more than 65% of respondents were the sum up of those who work in service and manufacturing industries and encounter pressure and handle difficult situations the most (such as the pressure of supply chain, production planning and keeping the good quality of service is always a priority). A noteworthy aspect of this study is that there are more than 36% of respondents who possess job positions above manager level, who are most likely to experience pressure situations the most. Thus, the findings underscore the significance of work stress as a determinant of decision-making effectiveness, reaffirming existing theories on the adverse cognitive and behavioural effects of stress in organizational environments in the context of Taiwan as a workplace. The study further makes theoretical contributions by pointing to a relatively minor moderating effect neuroticism has on the relationship of stress with decision-making. Though neuroticism does somewhat moderate the impact of stress, the overall negative effects of neuroticism on decision-making emphasize the dual function of this personality trait in deciding the cognitive outcome under stress.

Moreover, the study provides evidence that a set of personality traits such as openness to experience, agreeableness, extraversion, and conscientiousness do not act as direct moderators between stress and decision-making; instead, they likely operate through indirect mechanisms as depicted by simple slope graphical analyses. This finding refutes the previously held beliefs regarding their roles as direct moderators, thereby necessitating a reconsideration of personality-driven models of managing stress. This research bridges the cognitive stress theories gap and personality studies by considering the recent findings in accepted theoretical models to better understand dynamics in the workplace.

5.3 Practical Implications

From a practical perspective, such a study provides organizational leaders with operational recommendations that impact effectiveness in decision-making in stressed settings. The high workplace stress level and its degree of negative correlation call for interventions that bring down stress levels in the workplace. Managers should take a holistic approach to dealing with stress. This would include mindfulness training, fair sharing of work, and access to mental health resources. These can help mitigate the worst effects of stress on thinking and performance.

The marginally supported moderation effect of neuroticism also holds a practical significance. Individuals with High neuroticism are more likely to have issues with decision-making when stressed. Specific programs, such as resilience-building workshops or specific support systems, can be implemented for these employees. Companies may also utilize personality tests in hiring or training to ascertain how likely the employees are to feel stress and tailor their training programs to meet those needs.

Although other personality traits did not have a significant impact, findings show that a supportive and flexible work environment can help workers develop better resilience against stress. Working together, talking openly, and learning all the time can help workers use their personality strengths in the fight against stress. Most importantly, findings bring into focus the necessity to arm managers and decision-makers with tools to deal with mental pressure from stress, so that organizations can stay the course.

5.4 Limitations and Future Research

This study has limitations that show areas where further research can be conducted. First, it had a cross-sectional design. With such a design, it becomes quite difficult to judge if the findings have a well-established outcome for a broader context rather than a longitudinal and experimental design that can be adapted for future studies. Second, self-report measurements may elicit biased answers by having the participant expect good or other personal feelings toward the stressor and how well a decision will be made. Future work should use objectively measured ones such as physiological stress indicators (e.g., cortisol levels) or performance-based decision-making tasks, to validate and enhance the robustness of the findings. Third, the population group for this study may limit how broadly applied the findings could be. Cultural organizational or industry-specific factors might determine how work stress and personality traits work together to affect decision-making. It would be an expansion of the scope of research by adding different cultures and job settings so that the results are helpful to various groups of people.

Finally, the marginal moderating effect of neuroticism again indicates the need for deep research into its dualistic nature as both a weakness and a strength when confronting stress. Future studies should, for example, explore deeper into the underlying mechanisms involving cognitive appraisal or emotional regulation of the relationship. Other ways through which interventions targeted at neurotic individuals could have better implications on the extent of stress on decision-making should be studied. By solving these problems with these recommendations, further studies can be used and developed to build theories with respect to the management of work stress in decision-making organizational skills.

Author Contributions: Contributions have been made by the following authors, as described below;
Conceptualization, Tung-Sheng Kuo and Aman Raj; **Data curation**, Tung-Sheng Kuo and Aman Raj; **Formal analysis**, Tung-Sheng Kuo, Aman Raj and Saurabh Anand; **Investigation**, Aman Raj; **Methodology**, Aman Raj; **Project administration**, Tung-Sheng Kuo and Aman Raj; **Resources**, Aman Raj; Software, Aman Raj; **Supervision**, Tung-Sheng Kuo; **Validation**, Tung-Sheng Kuo, Aman Raj and Saurabh Anand; **Visualization**, Tung-Sheng Kuo, Aman Raj and Saurabh Anand; **Writing – original draft**, Aman Raj; **Writing – review & editing**, Tung-Sheng Kuo and Saurabh Anand.
All authors will be updated at each stage of manuscript processing, including submission, revision, and revision reminder, via emails from our system or the assigned Assistant Editor.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflicts of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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