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The Impact of Personality and Situational Factors on Perceived Stress: An Investigation During COVID-19 Pandemic

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Abstract

The study investigates the relationship between personality and situational factors on perceived stress level during the global COVID-19 pandemic. Analysis of data collected from people across different territories confirms the association between personality traits and perceived stress level. Furthermore, the paper shows that people are experiencing moderate stress, which is affected by where they are residing, whether their personal finance is at risk, and their usage of social media during the pandemic.

Keywords: Personality, Perceived Stress, Situational Factors, Cross-Country Comparison

Introduction

At the end of 2019, beginning of 2020, the Coronavirus COVID – 19 took the world for a storm as it quickly spread out to most nations within only a few months, and was declared a global pandemic, with nearly 8 millions infected and nearly half a million dead (and counting) (worldometers, 2020). Many nations declared quarantine orders, cancel large gatherings, and even close off borders in an attempt to slow the virus spread. Starting as a health crisis, it rapidly escalated to creating negative social, economic and political impacts. People's lives are disrupted when schools are closed, adults work at home, businesses recorded huge losses and even bankruptcy, many lose their jobs and are left hungry and homeless. With such challenging conditions, it is predictable that people would experience emotional distress, especially when many nations place a compulsory social distancing and quarantine that bounds people at home. This study aims to investigate mental health during the Covid-19 by examining stress levels of people in different countries and the relationship between personality and stress.

Literature Review

Lazarus (1990) viewed stress response as the result of the interaction between humans and environment, which means that individuals would differ in their perception of stress. In the transactional model of stress developed by Lazarus & Folkman (1984), individuals experience two appraisal processes, one to evaluate the external

stressors and personal stake and the other evaluates personal resources to cope with stressors; stress occurs when imbalance between stressors' demands and personal resources to cope with such demands. When judging a situation to perceive threats, individuals differ in terms of perception and cognitive appraisal, which leads to varied interpretation of situations. People differ in terms of personal resources to cope with external threats, which means how they react to perceived threats is not the same as well.

Even though personality was not specifically included in the transactional model of stress, it clearly impacts individuals' cognitive appraisal processes. Trait theory views personality traits as patterns of thoughts and action, and there are characteristics that are stable and consistent across situations (Costa & McCrae, 1992). However, there are studies that proved personality traits can fluctuate and be changed and even in a short time frame (see for example, Wilson et al., 2016; Wrzus & Roberts, 2017; Sherman et al., 2015). Whatever the case it is, the relationship between perceived stress and personality has been widely accepted as previous research has proved the relationship between personality and subjective perception of stress. Vollrath (2001) believed that personality affect the descriptive representation of situation and evaluative perception of situation. Cross-sectional and longitudinal studies showed a significant association between personality and perceived stress (Ebstrup et al., 2011). Shields et al. (2016) discovered that change in perceived stress is strongly related to change in pessimism on a weekly basis. Kondratyuk & Morosanova (2014) found out that high level of neuroticism and introversion can lead to high chronic stress. Şahinn & Çetin(2017) conducted a weekly assessment study and confirmed that neuroticism and extraversion predict perceived stress. The cross-sectional population-based research by Feizi et al. (2014) proved that people with high neuroticism tend to have high level of stress and anxiety, and those with high extraversion and consciousness have lower the chance of high psychological stress. Borkoles et al. (2018) linked Type D personality to increased level of perceived stress and discovered that people with Type D personality tend to search the environment for threats.

As defined, stress response is the interaction of environment and individuals, debate on the role of environmental factors and personal factors on perceived has attracted attention. The study by Luo et al., (2017) found that genetic factors largely explained for the concurrent relation and the continuity between the two; meanwhile, environmental factors played a more significant role in the association between changes in personality and in perceived stress. Similarly, the research on students by Schmidt et al. (2013) showed that structural conditions explained perceived stress better than personality. Lebois et al. (2016) proposed that situations of certain features (such as containing self-threat, negative affect, certainty elements, etc.) can predict the level of stress that people perceive. For example, the work by Onah (2003) about pregnant Nigerian women's perception of environmental stressors confirmed that economic, futuristic, health and social factors caused an increase in stress. Or the research by Kallio et al. (2020) found that people can be more stressed out by the poor quality of the environment. Knight et al. (2013) demonstrated that contract-related factors (such as having contracts or not, working hours) influence stress level of coaches in Canada. Similarly, the examination on teamwork by Guznov et al. (2010) found an association between high neuroticism and higher stress and workload for individuals in the position of having direct control but not in other positions, which suggests the effect of external environmental demands (social interactions required in a team role).

In this study, it is proposed that perceived stress is influenced by personality traits and context but it does not attempt to identify nor compare the magnitude of such impact.
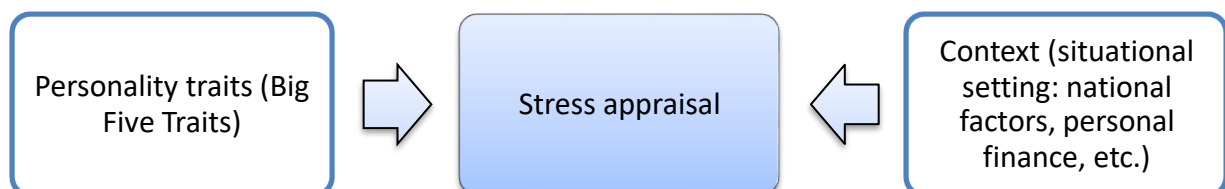
Methodology

Procedure

A survey questionnaire was administered and distributed online on randomly selected Facebook groups that have members living in Vietnam and foreign countries. The questionnaire was open for three weeks, from mid April to the beginning of May, when the virus started to spread uncontrollably, the number of infected cases skyrocketed worldwide, chaos and system overload happened, many countries h declared national lock-downs. After three weeks, a total of 219 responses were collected on Google Form, 3 were not valid, leaving only 216 eligible responses. The survey comprises three sections: the first one asks about personal information and personal circumstances during Covid-19 pandemic, the second section and the third section measure personality and perceived stress scale respectively.

Instruments

Personality is measured on five domains, using a 30-item short form questionnaire tested and refined by Soto & John (2017). The questionnaire is developed based on the Big Five Model, one of the most popular frameworks (McCrae & Costa, 1999); many have praised the model in examining stable personality traits in threatening situations (see Besser & Shackelford, 2007; Hojat et al., 2003). The Big Five Model examined five personality traits: Extroversion, Agreeableness, Neuroticism, Conscientiousness, and open-mindedness. In this study, the term "Neuroticism" is replaced by the term "Negative Emotionality" to be consistent with the original questionnaire by Soto and John. The level (high or low) of each trait is calculated by adding up the scores of the questions that measure the trait.

To measure stress, the Perceived Stress Scale (PSS) developed by Sheldon Cohen and his colleagues (1983) was used. It is one of the most popular psychological instruments used to measure individuals' perceived stress. The PSS is a self-reported scale that asks about individuals' experience of perceived stress in the last 30 days. Among the three versions of the scale: PSS-14, PSS-10, and PSS-4, the 10-item version was selected to use in this study. There are 10 questions on the scale, each asks the interviewee to chose the option that best describes their frequency of experiencing the stressful situations. The original scale was 0 – Never, 1 – Almost Never, 2 – Sometimes, 3 – Fairly Often, 4 – Very Often. The scale used in this study kept the same 5 levels of frequency, but changes the numbering of each option as followed: 1 – Never, 2 – Almost Never, 3 – Sometimes, 4 – Fairly Often, 5 – Very Often. Score for each question is added up to calculate the level of perceived stress; scores ranging from 0-13 are considered as low stress, 14-26 is considered as moderate stress, 27-40 is considered as high stress.

Data

The research sample consisted of 216 people living in 21 countries affected by Covid -19 pandemic. Specifically, 44% of the respondents are living in Vietnam, 39% are living in European countries, and the rest are residing in other nations (see Table 1). Around 90% of the respondents are living in quarantined areas (see Table 2), more than 80% of them believe that quarantine helps to prevent the spread of the virus (see Table 3). 60% of the respondents are female (131 people), around 39% are male (85 people), and only 1% identified themselves as others (2 people). Nearly half of the participants (48%) are from age 25 to 34, 29% are from age 35 to 49, around 10% are from 18 to 24 and over 50, only a minority are under 18. In terms of employment status, half of the respondents are full-time employed, 6% are part-time employed, 17% are self-employed, 19% are students (including those on scholarship), and the rest are other types of employment (such as housewives, unemployed, etc.).

Table 1: Population of respondents by Residing country

Residing_country

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Vietnam	95	44.0	44.0	44.0
	Europe	87	40.3	40.3	84.3
	Others	34	15.7	15.7	100.0
	Total	216	100.0	100.0	

Table 2: Population of respondents by Quarantined area

Living_in_quarantined_area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	194	89.8	89.8	89.8
	No	20	9.3	9.3	99.1
	Others	2	.9	.9	100.0
	Total	216	100.0	100.0	

Table 3: Population of respondents believing in the effectiveness of quarantine

Believe_in_quarantine_

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	176	81.5	81.5	81.5
	No	26	12.0	12.0	93.5
	Others	14	6.5	6.5	100.0
	Total	216	100.0	100.0	

Results

Perceived stress level and Personality

The relationship between personality and perceived stress is determined by Pearson Correlation. The results showed a relationship between personality and perceived stress level.

To be more specific, in Table 4, with r = 0.417, p < 0.01, Negative Emotionality was proved to have a positive moderate relationship with perceived stress level. This could be understood as the higher level of negative emotionality is, the higher the stress level is.

Table 4: Correlation between Negative Emotionality Personality and Perceived Stress Scale

Correlations

		Perceived. Stress	Negative Emotionality
Perceived. Stress	Pearson Correlation	1	.417[**]
	Sig. (2-tailed)		.000
	N	216	216
Negative Emotionality	Pearson Correlation	.417[**]	1
	Sig. (2-tailed)	.000	
	N	216	216

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 5, with r = -0.184, p = 0.007 < 0.01, it can be concluded that there is a weak negative relationship between Conscientiousness and perceived stress level, which means the lower level of conscientiousness a person has, the higher level of stress he/she perceives.

Table 5: Correlation between Conscientiousness personality and Perceived Stress Scale

Correlations

		Perceived. Stress	Conscientiousness
Perceived .Stress	Pearson Correlation	1	-.184**
	Sig. (2-tailed)		.007
	N	216	216
Conscientiousness	Pearson Correlation	-.184**	1
	Sig. (2-tailed)	.007	
	N	216	216

**. Correlation is significant at the 0.01 level (2-tailed).

The ANOVA test was run to investigate whether different groups recorded different personality. With Sig. = 0.001 < 0.05 and Sig. = 0.043 < 5, the result showed that different age groups vary in Negative Emotionality and Conscientiousness respectively. There are no differences in personality by Gender and Nationality.

Then, means of the groups were compared to further investigate the differences in personality.

Table 6 shows that the older people are, the lower level of negative emotionality they experience.

Table 6: Negative Emotionality by Age

Report

NegativeEmotionality

Age	Mean	N	Std. Deviation
Under 18	2.0000	2	2.82843
18 to 24	.4783	23	5.15989
25 to 34	-1.1524	105	5.02643
35 to 49	-1.7656	64	5.01661
Over 50	-5.5909	22	4.69710
Total	-1.5833	216	5.17979

Table 7 demonstrates that people in the age group from 35 to 49 have the highest level of conscientiousness.

Table 7: Conscientiousness by Age

Report

Conscientiousness

Age	Mean	N	Std. Deviation
Under 18	2.0000	2	2.82843
18 to 24	1.1304	23	3.59677
25 to 34	2.6952	105	4.14433
35 to 49	4.1719	64	4.38089
Over 50	3.2727	22	5.02548
Total	3.0185	216	4.31327

Stress level during Covid-19 period

Data were collected using a random sampling method from 216 participants across different countries. The result showed that the majority of respondents perceived moderate level of stress during the Covid-19 period (M = 20.75, S.D = 5.243)
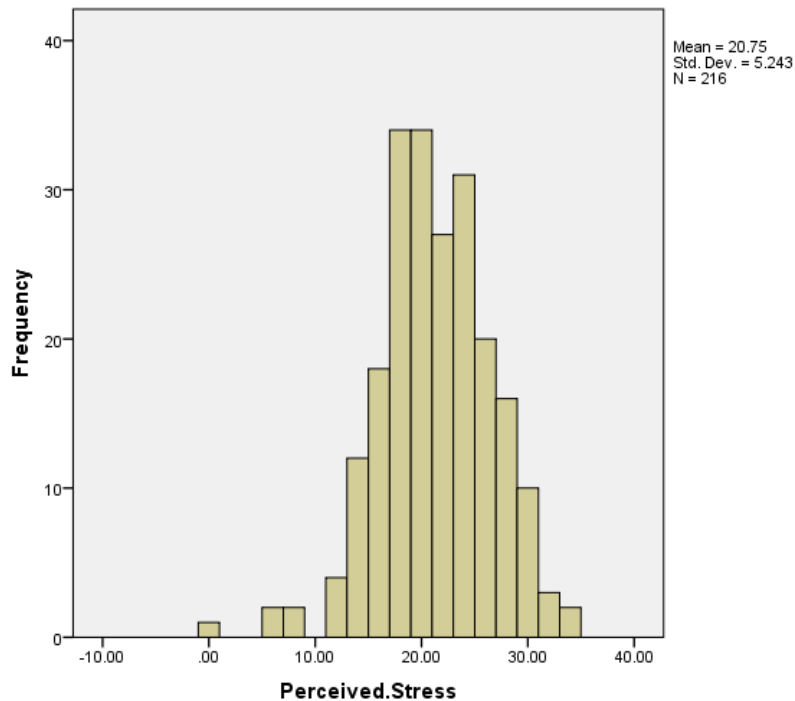
Graph 1: Stress level during Covid-19 pandemic

The result in Table 8 is Sig. = 0.037 < 0.05, which proves that there is a difference in stress level among people who have different usage of social media during the quarantine period.

Table 8: Perceived Stress and Daily usage of social media

ANOVA

Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.188	23	1.095	1.650	.037
Within Groups	127.437	192	.664		
Total	152.625	215			

In Table 9, Sig = 0.031 < 0.05 means that people having personal finance affected by the Covid-19 pandemic experienced different stress levels.

Table 9: Perceived Stress and Personal finance

ANOVA

Perceived.Stress

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	127.313	1	127.313	4.711	.031
Within Groups	5783.187	214	27.024		
Total	5910.500	215			

Table 10 with Sig= 0.018 < 0.05 shows a difference in stress level of people living in different countries.

Table 10: Perceived Stress and Residing countries

ANOVA

Perceived.Stress

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	219.844	2	109.922	4.114	.018
Within Groups	5690.656	213	26.717		
Total	5910.500	215			

Then, means of groups are compared to look more specifically into the differences in stress levels. Table 11 shows that people living in Vietnam experienced less stress than those from Europe.

Table 11: Perceived Stress in different destinations

Report

Perceived.Stress

Residing_country	Mean	N	Std. Deviation
Vietnam	20.1684	95	5.41993
Europe	21.9310	87	4.90323
Others	19.3529	34	5.11019
Total	20.7500	216	5.24316

Not surprisingly, the result in Table 12 demonstrates that people whose finance is negatively affected by the pandemic experienced higher stress compared to those whose finance is stable.

Table 12: Perceived Stress of people having finance affected

Report

Perceived.Stress

Personal_finance_affected	Mean	N	Std. Deviation
Finance affected	21.4113	124	4.97639
Not affected	19.8587	92	5.48441
Total	20.7500	216	5.24316

Interestingly, based on Table 13, it seems that the more hours that people spend on social media, the higher level of stress they experience.

Table 13: Perceived Stress by the level of social media usage

Report

Perceived.Stress

Daily_usage_of_social_media	Mean	N	Std. Deviation
Less than 2 hours	18.8600	50	5.15479
2 - 4 hours	20.7778	99	5.12209
Over 5 hours	22.1194	67	5.12428
Total	20.7500	216	5.24316

Discussion

This study is the first one to examine people's stress in different countries during Covid-19. The research aims to investigate the relationship between stress level and personality and how contexts may affect people's stress.

The first finding confirmed the relationship between personality traits and perceived stress level. Analysis of data showed that perceived stress is positively related to negative emotionality (or neuroticism), and negatively related to conscientiousness. This result of negative emotionality and perceived stress is in line with previous

research by many authors, such as the ones by Fornés-Vives, et al. (2012), Dalia, Lucia & Nathalie (2017), or Conard & Matthews (2008). Individuals with high scores of negative emotionality have more difficulties in controlling emotion and are more likely to experience negative emotions; therefore, it is logical that they tend to have higher level of stress than those that have low negative emotionality. On the other hands, trait of conscientiousness is found to have a negative relationship with perceived stress, which means that the more conscientious a person is, the lower level of stress he perceives. This outcome concurs with existing literature, such as the study by Luo & Roberts (2015) who stated that people who increased in conscientiousness experienced less stress over time. Because conscientiousness is related to positive thinking and positive reappraisals (Watson & Hubbard, 1996), it is comprehensible that high level of conscientiousness is associated with low level of stress.

The second finding illustrated the impact of situational factors on stress level. National and global contexts have been proved to influence people's experience of stress. For example, Ragnarsdóttir, Bernburg, & Ólafsdóttir (2013) hypothesized and inspected different outcomes (caused by the global financial crisis) that affect emotional distress and found out that Icelandic people's comparison of past outcomes (to the present) has the most significant impact on their distress. On a similar note, the research by Abu-Ras, Suárez, & Abu-Bader (2018) during the 2016 presidential election in America (where one potential candidate frequently underlined his intention to restrict immigrants from entering the country) discovered that people of certain ethnicities suffer from discrimination stress, which makes them more likely to have higher rate of mental health problems than those who are not discriminated.

The analysis showed that people residing in Vietnam seemed to have less stress compared to those living in Europe during Covid-19. This could be explained by the country's successful containment of the virus compared to others (Quach & Hoang, 2020; Dinh et al., 2020, Huynh, 2020; Ha et al., 2020), which make their citizens feel more secured than those living in nations where the number of infected and death toll is much higher.

Furthermore, people whose finance is negatively affected by the Covid-19 perceive higher stress than those whose finance is stable. The Covid-19 has severely disrupted businesses worldwide, causing many people to either lose parts of their regular incomes, or become unemployed. This finding corresponds to the study on families by Wei & Chen (2014) who confirmed that financial stress is significantly related to mental health problems. Sweet et al. (2013) also discovered that high financial debt is associated with higher perceived stress and depression in the US. Similarly, Faresjö (2013) compared the stress level between Greek and Swedish young adults and found out that the Greek had higher perceived stress as a result of living in deteriorating national economic conditions.

Additionally, the result showed that people who use social media more frequently records higher perceived stress. The finding seems contradictory to the study by Bland et al. (2012) who claimed that people used internet social networks as a way to reduce stress. The need to stay connected is perhaps even more imperative during the turbulent time, especially when the majority of respondents lived in quarantined areas at the time this study was conducted. Higher stress from using social media can be explained as even though social networks established through social media is a means of having connectedness and perceived support, such support is superficial, and thus, the more people are connected, the more lonely they can get (Ventriglio & Bhugra, 2017). Besides, people can be stressed out by receiving negative information about the virus daily, especially when social media is used as a channel for the government to communicate with the public concerning health issues (see Coiera, 2013; Neiger et al., 2012, or Mehta & Atreja, 2015). Because in addition to the primary use of social media for keeping in touch with friends and families or for entertainment purpose during the quarantined period, people also rely on this channel for updating and sharing information related to the pandemic. In the case of Vietnam, the government integrated this channel into other initiatives to combat Covid-19, where citizens are regularly updated on the situation and are encouraged to stay connected for timely information. Social media proves to be effective in propaganda; therefore, agenda should be developed to maximize the benefits of this channel (such as connecting people and sharing information) in the time of terror and panic.

Limitations

The study was not conducted without limitation. First of all, small size of sample may affect the precision of findings. Secondly, the research was conducted at a specific time during the global health crisis, which can only describe the fact at that moment and cannot generate a clear understanding of the impact of situation on stress. In the future, perhaps a larger sample size and a longitudinal study at different times of the pandemic may better explain the effect of situational factors on perceived stress.

Conclusion

The research is conducted cross-country during a severe global pandemic to investigate the impact of personality and situational factors on perceived stress level. Analysis of data confirms the association between personality traits of negative emotionality and conscientiousness and perceived stress, which is consistent with existing literature. The study also shows that people experience moderate stress during the global Covid-19 epidemic and that perceived stress is affected by situational factors including residing country, personal finance, and usage of social media. Future research could inspect stress level through different times of a situation to provide a more comprehensive understanding of how context influences stress.

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