

Examination of the Relationship between Stress Coping and Personality for University Students

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Abstract

In Japan, 50% of the population is notably stressed, which is expressed as the phrase “stress society”. Prevention and care for stressful situations through stress management are social issues for Japanese society. It is important to understand individual psychological traits for dealing with individual stress. Therefore, this study conducted a survey on college students to clarify relationships between their personalities and types of stress coping based on Lazarus’s theory. The participants were asked to answer questionnaires about their personalities (TEG II and Big Five) and types of stress coping (SCI). Based on the answers about stress coping, they were divided into emotional or cognitive strategy dominant groups. A canonical correlation analysis was performed scores of the questionnaires in order to quantify the relationships between their personality traits and types of stress coping. The results of the analysis showed that specific personalities had relations to types of stress coping. In addition, there were different relationships between personality and stress coping depending on whether the participants were in the emotional or cognitive strategy dominant groups.

Keywords

Stress Coping, Personality, University Student, Stress

1. Introduction

Stress and life are inseparable, and “stress society” is a common expression. In response to a National Livelihood Survey conducted in 2016 (Ministry of Health, Labour and Welfare, 2016), 47.7% of respondents aged twelve years or older answered “Yes” to the question of whether they have trouble or stress in their daily lives. Looking at the percentage of people who have trouble or stress by

gender, it is 42.8% for men and 52.2% for women. Looking at the percentage of people who have worries and stress by age group, it is high for both men and women aging from their twenties to fifties. It is about 50% for men and about 60% for women. Judging from these survey findings, there are many opportunities for people working in society from their twenties to fifties to face stress, and it will be difficult to avoid stress. For that reason, people control stress related to daily life, such as changes in human relationships and living environment. Stress management is considered to be an issue for the purpose of preventing over-stress. Also, it is important to evaluate and diagnose our character using a personality test and to understand our own personality and how to face stress. It will be necessary to think about how to survive in a stressful society. There are various types of stress, which can be classified as mental stress and physical stress. For example, mental stress is what is added to the mental aspect by factors such as interpersonal relationships. And physical stress is that which affects the body through lack of sleep or changes in body temperature.

It is important to work on education and the practice of stress management to cope with the stress people receive daily in schools and workplaces. In the Japanese school society (Kawano & Tanaka, 1986), children get moderate stress in the school environment. One student stated that he would get repeated stress and repeated appropriate treatments to eliminate it. School is a place to train us to cope with stress and group life. Under the present circumstances, such environment is more likely to give stress, and the problem is that people cannot handle stress well. According to responses to a National Livelihood Survey conducted in 2016 (Ministry of Health, Labour and Welfare, 2016), there is a 10% increase in those who say that there is trouble or stress for both teenagers and people in their twenties.

The stresses people experience can be divided into stressors, which are harmful stimuli from the outside world, and stress responses, which are psychological and physical reactions caused by the stressors. Typical psychological stress responses include depressive feelings and anxiety, but when these reactions last for a long time, mental disorders such as depression may occur. Stress responses to stressors are said to arise from agents that affect cognitive assessment and stress coping. How an individual evaluates the cause of stress, and what kind of coping action is used, cause individual differences in stress responses. For the care and prevention of over-stress, which can be said to be a problem of modern society, people will practice appropriate stress coping, understand what kind of personality they have through personality testing, and consider how to deal with stress.

College students in their teens and twenties are waiting for a turning point. It is important to establish a stress management method suitable for oneself in student life. There are individual differences in response to stressful events depending on physical, behavioral and psychological aspects. Because stressors and behavioral responses are different, it is necessary to cope with the stress in a manner appropriate for the individual in order to strengthen stress tolerance. To

that end, stress coping must be established in consideration of the personality traits of the person.

2. Previous Studies

Lazarus & Folkman define coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (Lazarus & Folkman, 1991)”. Kato (2001) examined the relationship between Big Five and interpersonal stress coping (Kato, 2001). His results suggested that the multiple correlation coefficient between Big Five and positive relationship coping, negative relationship coping, and solution advancement coping was significant. Also, from the results of multiple regression analysis, it turned out that the Big Five factor predicts each factor of interpersonal stress coping.

Additionally, Chikamura et al. (2007) examined the relationship between STAI, YG personality test and stress coping in clinical nursing practice (Chikamura, Kobayashi, Ishizaki, Aoi, Iida, Yamagishi, & Kataoka, 2007). Their results indicated that the scores of the STAI and YG personality tests showed a significant correlation with positive problem resolution, problem resolution consultation, and emotional divergence involving others.

Takeda & Fujisawa (2006) conducted a factor analysis on the results of these questionnaires to examine the relationship between the Ego Attitude Scale (EAS) and the Lazarus type stress coping inventory (SCI) (Takeda & Fujisawa, 2006). As a result, two factors were extracted from EAS and three factors were extracted from SCI. The results of multiple regression analysis on the combination of these factors and the stress coping type score clarified that personality traits affect stress coping.

SCI can estimate eight types of stress coping: planned problem-solving, confrontational coping, seeking social support, accepting responsibility, self-control, escape-avoidance, distancing, and positive reappraisal. However, in the above-mentioned prior research, the relationship between the stress coping types subdivided, such as SCI, and various personality trait factors shown by the Big Five theory and the egogram, has not been verified.

3. Purpose of This Study

College students are on the verge of career design and have a turning point in their life, which can lead to stressful situation for them. It is important to understand psychological traits specific to college students in order to consider their stress management. Therefore, this study focused on the college students' personality and stress coping.

As mentioned above, although stress coping can be classified into various types, few studies examined relationships between these types and personality traits. This study focused on eight types of stress coping based on Lazarus's stress coping theory and clarified their relationship with personality traits through a questionnaire on college students.

4. Method

4.1. Data of Survey

The survey was conducted from September to November in 2018.

4.2. Participants

Participants were 139 male and female college students (95 males and 44 females, mean age: 19.45, SD = .11).

4.3. Survey Method

This study conducted a questionnaire using the Tokyo University Egogram New Ver. II (TEG II), the Big Five Personality Inventory (Big Five), and the Lazarus Type Stress Coping Inventory (SCI) for college students of A University. Factors of each scale are shown in **Table 1** (SCI), **Table 2** (Big Five), and **Table 3** (TEG II).

Table 1. Stress coping styles of SCI.

Esc (Escape avoidance)	Escape from problem solving
Acc (Accepting responsibility)	Obedience, Sense of responsibility
Dis (Distancing)	Separation between problem and self
Sel (Self control)	Emotional and behavioural control
See (Seeking social support)	Extroversion, Request
Pla (Planful problem solving)	Prudence, planning
Pos (Positive reappraisal)	Self-discovery, Self-enlightenment
Con (Confrontive coping)	Strength of self-confidence

Table 2. Personality factors of Big Five.

A (Agreeableness)	Kindness, Prioritizing others
N (Neuroticism)	Calm, Carefree
C (Conscientiousness)	Tough on myself, Planning
O (Openness)	Full of curiosity, Keeping calm
E (Extraversion)	Actively interacting with people, Sensitive to social changes

Table 3. Ego states of TEG II.

CP (Critical Parent)	Responsibility, ideal
NP (Nurturing Parent)	Compassionate, Receptive
FC (Free Child)	Expressing emotions directly, Creative
A (Adult)	Realistic, Calm, Attaching importance to objectivity
AC (Adapted Child)	Prioritizing others, Shy

After explanation of the survey, the participants were asked to answer the questions of these psychological scales. Factor scores of each scale were calculated based on their answers and used for the following analysis.

4.4. Analysis Method

4.4.1. Statistical Analysis

IBM SPSS Statistics Version 25 was used to analyze the results obtained from the questionnaire. Canonical correlation analysis was performed for the factor scores of SCI as the first variable group and the factor scores of Big Five and TEG II as the second variable group in order to clarify the relationship between stress coping and personality.

4.4.2. Classification of Participants

In addition, this study carried out an analysis focusing on scores of cognitive strategy for active problem-solving and emotional strategy for reducing emotional stress, which indicated the participants' characteristics of stress coping. Comparing these scores, the participants who had higher scores of cognitive strategy than emotional strategy were classified into the "higher group of cognitive strategy" and others into the "higher group of emotional strategy". After dividing the participants in this way, canonical correlation analysis was conducted on the first variable group and the second variable group for each.

5. Result

As a result of canonical correlation analysis on the first group of variables related to stress coping types and the second group of variables related to personality traits, significant canonical correlation coefficients were acquired between the first canonical variable ($r = .67, p < .01$) and the second canonical variable ($r = .49, p < .05$). Canonical loadings of the first and second canonical variables for each factor are shown in **Table 4**.

Among the first group of variables, the scores of "Pla" and "Pos" showed large canonical loadings in the negative direction on the first canonical variable. Considering these results, the first canonical variable of the first group was interpreted as a value related to "cognitive strategy". The score of "Con" showed a large canonical loading on the second canonical variable. Therefore, the second canonical variable of the first group was interpreted as a value related to "confrontive coping".

Among the second group of variables, the scores of "C", "O", "E", "A", "CP", "NP", and "FC" showed large factor loadings in the negative direction on the first canonical variable. Therefore, the first canonical variable of the second group was interpreted as a value including various aspects of personality without "N" of Big Five, or "A", and "AC" of TEG II. The score of "AC" showed a large canonical loading on the second canonical variable. Considering this result, the second canonical variable of the second group was interpreted as a value related to an "ego state of adapted child".

Table 4. Result of canonical correlation analysis.

Factor	Canonical loadings	
	First canonical variables	Second canonical variables
Stress coping types		
Esc	.16	.21
Acc	-.25	.46
Dis	-.15	.13
Sel	-.48	-.10
See	-.57	.56
Pla	-.62	.09
Pos	-.84	-.03
Con	-.21	.64
Personality traits		
A (Agreeableness)	-.79	.35
N	-.41	-.33
C	-.64	-.25
O	-.65	-.14
E	-.73	.12
CP	-.75	-.06
NP	-.76	.02
FC	-.78	.15
A (Adult)	-.13	-.20
AC	.46	.68
Canonical correlation coefficients	.67**	.49*

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

Similarly, canonical correlation analysis was performed on the emotional strategy dominant group and the cognitive strategy dominant group. The result of the emotional strategy dominant group was a significant canonical correlation coefficient to the first canonical variable ($r = .72, p < .05$). Canonical loadings of the first canonical variables for each factor are shown in **Table 5**. The result of the cognitive strategy dominant group was a significant canonical correlation coefficient to the first canonical variable ($r = .75, p < .01$). In addition, the result of the cognitive strategy dominant group had a trend of significant canonical correlation coefficient to the second canonical variable ($r = .75, p < .01$). Canonical loadings of the first and second canonical variables for each factor are shown in **Table 6**.

Among the first group of variables in the higher group of emotional strategy, the scores of “See” and “Sel” showed large canonical loadings in the negative di-

rection on the first canonical variable. Considering these results, the first canonical variable of the first group was interpreted as a value related to “stress coping requiring cooperativeness”. Among the second group of variables in the higher group of emotional strategy, the scores of “A”, “NP” and “FC” showed large factor loadings in the negative direction on the first canonical variable. Therefore, the first canonical variable of the second group was interpreted as a value related to “cooperative personality”.

Among the first group of variables in the higher group of cognitive strategy, the scores of “Con” and “See” showed large canonical loadings on the first canonical variable. Considering these results, the first canonical variable of the first group was interpreted as a value related to “seeking support for problem-solving”. The scores of “Pla” and “Pos” showed large canonical loadings on the second canonical variable. Therefore, the second canonical variable of the first group was interpreted as a value related to “cognitive strategy”.

Table 5. Result of canonical correlation analysis (Emotional strategy dominant group).

Factor	Canonical loadings
	First canonical variables
Stress coping types	
Esc	.03
Acc	-.11
Dis	-.09
Sel	-.60
See	-.63
Pla	-.19
Pos	-.48
Con	-.26
Personality traits	
A (Agreeableness)	-.67
N	.05
C	-.26
O	-.46
E	-.47
CP	-.45
NP	-.90
FC	-.65
A (Adult)	-.08
AC	.02
Canonical correlation coefficients	.72*

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

Table 6. Result of canonical correlation analysis (Cognitive strategy dominant group).

Factor	Canonical loadings	
	First canonical variables	Second canonical variables
Stress coping types		
Esc	.36	.11
Acc	.39	.16
Dis	.26	.32
Sel	-.03	.55
See	.58	.43
Pla	.01	.78
Pos	-.11	.85
Con	.59	.27
Personality traits		
A (Agreeableness)	.35	.64
N	-.38	.44
C	-.06	.74
O	-.11	.63
E	-.08	.60
CP	-.11	.78
NP	-.13	.60
FC	.04	.68
A (Adult)	-.13	-.02
AC	.61	-.54
Canonical correlation coefficients	.75**	.69†

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

Among the second group of variables in the higher group of cognitive strategy, the score of “AC” showed a large canonical loading on the first canonical variable. Considering this result, the second canonical variable of the second group was interpreted as a value related to an “ego state of adapted child”. The scores of “C”, “O”, “E”, “A”, “CP”, “NP”, and “FC” showed large factor loadings on the first canonical variable. Therefore, the first canonical variable of the second group was interpreted as a value including various aspects of personality without “N” of Big Five, or “A”, and “AC” of TEG II.

6. Discussion

6.1. Discussion about the Results of Canonical Correlation Analysis

As a result of the canonical correlation analysis, two significant canonical variables were extracted from the score for stress coping type (the first variable

group) and the score for personality characteristics (the second variable group).

First, the first canonical variable was discussed. From the first variable group, the first canonical variable mainly composed of the types of the planning (Pla) and the positive evaluation (Pos) was extracted. These types of coping strategies are classified as cognitive strategies and are considered to have characteristics which are similar to proactive coping for dealing with stress situations and self-growth. Proactive coping is a type of coping behavior that has been defined as “the ability to build resources to promote challenging goals and personal growth” (Schwarzer, 2000), and has attracted attention in recent coping studies. This is considered to be an action with a nature close to Pos’s coping type, which stresses one’s own experience and aims for self-discovery and self-reformation among stress coping types. In addition, planned coping, one of the components of proactive coping, is defined as “target trial outlook that divides major issues into a form that is easy to cope with” (Ido & Kosugi, 2012). It has the same characteristics as Pla’s coping type. In other words, Pos and Pla are coping types related to planned coping and self-growth through difficult situations, as well as proactive coping.

Regarding the ego status of egograms, a previous study by Fujishima et al. (2005) reported an association with factors of the 5-factor personality test shortened version (FFPQ-50) (Fujishima, Yamada, & Tsuji, 2005). CP shows a positive correlation between the “extroversion” factor, the “control” factor, and the “playability” factor, and each factor corresponds to E, C, and O of the Big Five, respectively. NP indicates a positive correlation between the “attachment” factor and the “controllability” factor and the “playability” factor, and FC indicates a positive correlation between the “extroversion” factor and the “attachment” factor. The “attachment” factor corresponds to A in the Big Five. That is, it can be seen that the personality factors of C, O, E, and A, which correlate with Pos and Pla, respectively, correlate with the ego states of CP, NP, and FC. From the study of Fujishima et al. (2005), it can be said that C, O, E and A from Big Five and CP, NP and FC from egogram are interrelated. In addition, from the study of Tani et al. (2014), it is considered that such personality traits lead to coping behavior by Pos and Pla in the stress coping type (Tani, Kawashima, & Amaya, 2014).

Next, the second canonical variable will be considered. From the first variable group, the first canonical variable centered on the Confrontation type (Con) was extracted. Con shows a tendency to address problems proactively in stressful situations. The first canonical variable, centered on Adapted Child (AC), was extracted from the second variable group. AC is an ego state associated with personality traits such as prioritizing others and caring about one’s surroundings. According to a study by Nakamura & Shiraishi (2016) that examined the relationship between egogram ego status and stress coping behavior, AC ego status shows a negative correlation with stress coping factors such as “knowledge acquisition” and “information utilization” (Nakamura & Shiraishi, 2016). Targets with high C scores tend to respect others and be aware of their surroundings, so they are expected to try to deal with stressful situations actively. Howev-

er, it is difficult to acquire the knowledge necessary for coping with stress and to utilize information. Since various coping strategies cannot be considered flexibly, Confrontation type (Con) coping may be the result. Therefore, it is considered that the AC score was related only to the Con score.

6.2. Discussion about the Results of Analysis for the Cognitive Strategy Dominant Group and the Emotional Strategy Dominant Group

From the results of canonical correlation analysis, there was a difference in the relationship between stress coping tendency and personality in the cognitive strategy dominant group and the emotional strategy dominant group.

In the canonical correlation analysis for the cognitive strategy dominant group, two significant canonical variables were extracted from the score for stress coping (first variable group) and the score for personality characteristics (second variable group).

First, consider the first canonical variable. From the first variable group, the first canonical variables centered on Confrontation type (Con) and Seeking social support type (See) are extracted, and from the second variable group, Adapted Child (AC) is the center. The first canonical variable was extracted. If the subject's cognitive strategy is superior, the ego state of AC can be interpreted as causing direct and active coping like Con, and at the same time coping that seeks help from those around oneself. Cognitive strategies in stress coping tend to face and solve the problems that cause stress. Also, people with strong AC ego status tend to respect the opinions of others and obey them. Therefore, subjects who have high scores for both cognitive strategies and ACs may seek coping focused on problem solving while seeking support from those around them.

Next, the second canonical variable will be considered. From the first variable group, the second canonical variables, centered on the Plan type (Pla) and the Positive reappraisal type (Pos), were extracted. From the second variable group, Conscientiousness (C), Openness (O), Extraversion (E), Agreeableness (A), Critical Parent (CP), Nurturing Parent (NP) and free Child (FC) second canonical variables were extracted. This is because the Big Five C, O, E and A and the ego-gram CP, NP and FC are related to each other, and their personality characteristics are similar to those of proactive coping. It is thought that it has brought about Pla-type and Pos-type coping behavior.

In the canonical correlation analysis for the emotional strategy dominant group, one significant canonical variable was extracted from the score for stress coping type (first variable group) and the score for personality characteristics (second variable group). From the first variable group, the first canonical variables centered on the Self-control type (Sel) and the Seeking social support type (See) were extracted. From the second variable group, the second canonical variables centered on Agreeableness (A), Nurturing Parent (NP), and free child (FC) were extracted.

Emotional strategies in stress coping tend to reduce negative emotions related

to stress rather than solving the problem itself. For people with this tendency, the ability to perform Self-control (Sel) coping that controls their emotions and behavior seems to be important. In addition, revealing troubles to surrounding people and performing distractions through exchanges will be included in Seeking social support (See) coping. In order to execute these types of coping, personality characteristics such as Agreeableness (A) in Big Five and NP and FC in egograms may be required. In order to perform Sel-type coping that does not offend others, cooperative characteristics such as A and NP are indispensable. At the same time, it can be inferred that people with high FC scores are able to express honest feelings while trusting others, and perform See type coping. From the above, it is considered that there was a correlation between the See and Sel stress-handling types and the personality characteristics of A, NP, and FC.

See-type coping showed an association with personality traits in both the analysis results for the emotional strategy superiority group and the cognitive strategy advantage group. The [Patterson & McCubbin \(1987\)](#) scale categorizes social support-seeking coping behavior into two factors: “friend support seeking” and “family seeking” ([Patterson & McCubbin, 1987](#)). From this, it is inferred that See-type coping is used in the cognitive strategy superiority group for the purpose of requesting support for problem solving, and the emotional strategy superiority group in order to reduce emotional stress.

7. Conclusion

The purpose of this study was to clarify the relationship between personality and the tendency to cope with stress through a questionnaire survey of university students. The study focused on the relationship between subdivided stress coping and various personality traits using SCI as a stress coping measure and using Big Five theory and egogram as a personality test. From the survey results, between the positive evaluation type that promotes self-growth through stress situations and planning coping that attempts to cope with plans, O (intellectual curiosity), C (sensible sense), E (extroversion) in Big Five and A (collaboration) and CP (critical parent), NP (nurturing parent), and FC (free child) in the egogram were suggested.

The coping of positive evaluation type and planning type is considered to have the same properties as the proactive coping and problem-first coping behaviors shown in previous studies. The coping of positive evaluation type and planning type is considered to have the same properties as the proactive coping and problem priority coping behaviors shown in previous studies. These can be said to be common in that they contribute to problem-solving coping. The ego state of “adapted child” in the egogram is related to confrontational coping. When cognitive strategies were dominant, it was suggested that social coping seeking coping could be selected to solve problems. In the dominant group of emotional strategies, seeking social types and self-control coping are mainly used, and cooperation with the surroundings and self-expression are important. From this, it

is considered that the scores of the “nurturing parent”, “free child” in the ego-gram, and “Agreeableness” in Big Five showed a correlation with the scores of the seeking social type and self-control type. In this way, there are few studies that classify subjects according to the tendency of stress coping and examine the relationship with personality characteristics. By expanding the target and collecting and accumulating a wide range of data, it is likely that the relationship between personal stress management trends and personality will become clearer.

In this study, subjects were classified according to cognitive or emotional strategies in order to verify the relationship between personality traits and stress coping. As a result, it became clear that personality traits and stress coping types show different relationships according to the characteristics of the subjects. However, the coping behavior in stressful situations may vary depending on the content of the stressor and the cognitive evaluation of the subject. In the future, it will be necessary to conduct a survey using questionnaires for a more detailed examination.

This study also showed the necessity of psychological assessment preceding evaluation of one’s stress coping. Individual types of stress coping can be associated with different personality traits depending on their coping strategies. The results of this study are expected to be utilized for more detailed understanding of meaning of people’s stress coping and consideration of stress management methods for them.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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