

Factors Influencing Post-traumatic Growth (PTG) in Young Adults with Trauma during the COVID-19 Pandemic: A Retrospective Study

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Abstract: Most of the early adults in Korea have more than one traumatic experience during COVID-19 pandemic. The experience of a traumatic event causes psychological distress of the individual, making daily life difficult, and suffering from Post-traumatic Stress Disorder (PTSD) and anxiety. However, individuals who responded well to post-traumatic stress develop into a different level of competence and value than their pre-traumatic level of adaptation after trauma. The aim of this study was to analyze factors related to the levels of Post-traumatic Growth (PTG) in young adults with trauma, using the variables of the impact of event, ego-resilience, social support, meaning in life, fear of intimacy during the COVID-19 pandemic. Data were collected from 152 young adults in 4 cities from Macromill Embrain, a company specializing in the collection of data from online questionnaires, which have been created as online questionnaires. Data was analyzed using descriptive statistics, t-test, ANOVA, Pearson's correlational coefficients, and multiple regression analysis. Traumas frequently experienced by respondents were traffic accidents and the death of family members or relatives, and the common time was two to three years ago. Respondents' PTG showed positive correlation with ego-resilience, support from significant others, support from the family, support from friends, and meaning in life. PTG showed negative correlation with impact of event and fear of intimacy. Factors influencing PTG of respondents were the meaning in life ($\beta = 0.38, p < 0.001$), ego-resilience ($\beta = 0.28, p < 0.001$), support from friends ($\beta = 0.17, p = 0.020$), and impact of event ($\beta = 0.13, p = 0.046$). Influencing factors account for 41.0% of PTG in young adults. It is necessary to consider the variables of the research results revealed in education and counseling for PTG in young adults.

Keywords: Ego-resilience, Impact of Event, Meaning in Life, Post-traumatic Growth, Social Support, Young Adults

1. Introduction

Globally, the COVID-19 pandemic has caused people to feel lonely and deteriorated their quality of life. It also caused various psychological problems such as panic disorder, anxiety, and depression[1]. In South Korea, recently, individuals or groups are complaining of social anxiety and mental pain as they have experienced various trauma due to natural disasters such as large fires, sexual violence problems, large traffic accidents, typhoons, and infectious diseases such as COVID-19 pandemic[2]. Trauma can occur in all age groups, and mental health can deteriorate due to diseases such as PTSD after experiencing trauma. In addition, the degree of trauma experienced by each age group is different, and even if they experience similar trauma, their attitudes toward trauma varies depending on the cultural and social background[3]. Also, there is a lack of research on what changes occur in unexpected

Received: December 31, 2022; 1st Review Result: February 14, 2023; 2nd Review Result: March 11, 2023
Accepted: March 31, 2023

infectious disease disaster situations such as COVID-19. And, help should be provided to lead life through PTG, but research on young adults is needed due to the lack of exploration of early adulthood.

As a result of reviewing the trauma status and factors influencing PTG of young adults, 76.8% of young adults experienced at least one trauma in Korea[3], and Lee's[4] study on anxiety and stress caused by the COVID-19 situation also showed that 32.4% of early adults aged 20-39 years of age felt anxious, 57.5% felt stressed, and the stress of early adults was higher than that of older adults. Therefore, it is necessary to consider the types of trauma in young adults and the measures for PTG. PTG is characterized by psychological changes positively as a result of fighting events of trauma, and it leads to a positive change in quality from before trauma experiences beyond the level of adaptation, psychological function, or awareness before trauma events. Factors influencing PTG include various variables such as self-resilience, meaning in life, rumination, social support, self-efficacy, resilience, psychological flexibility, psychological strength, and optimism. Sudden disasters such as COVID-19 also lead to restrictions on active activities, destruction of daily life, physical health, and social network formation in early adult subjects, causing stress, psychological pain and leaving trauma[5].

During the COVID-19 period, the experience of such a traumatic event causes psychological distress of the individual, making daily life difficult, and suffering from depression, anxiety, and Post-traumatic Stress Disorder (PTSD)[6]. However, individuals who respond well to post-traumatic stress develop into a different level of competence and value than their pre-traumatic level of adaptation after trauma and may experience changes positively in the value of life, intimacy with others, and rediscovery of the possibility of life[7]. Recently, with the rise of positive psychology, at the level of positive experience or growth, even if there is actual traumatic experience, it will adapt more than before, and there will be positive changes[8]. These changes can be defined as "PTG"[5][7]. As a result of PTG, the quality in life and spirit of challenge can be improved, and psychological resilience against adversity can be increased[9]. Therefore, it is necessary to apply a strategy to achieve growth even if you experience trauma.

As a result of area-by-area review of the relevant factors of PTG, I selected the following specific variables with a large effective size. The representative variable of the self-variable group was selected as ego-resilience, the support variable group as social support, the cognitive variable group as meaning in life, and the emotional variable group as fear of relations. And, the incident itself also included impact of events[10].

Ego-resilience is to lead to good adaptation, social competence, and physical, psychological and social well-being[11]. In particular, Hyun et al.[12], who targeted early adults in America during the COVID-19 pandemic, reported that support such as resilience and family bond was the main influencing factor for those who showed a high level of PTG among early adults. Resilience enables people to adapt well, helps them respond positively, and has the effect of regulating and buffering the degree of influence of stress that individuals are exposed to in stressful situations[11][13]. Highly resilient individuals are able to flexibly respond to environmental crises encountered in their daily lives, which helps them to adapt successfully[13], so resilience is believed to have an impact on PTG.

Also, individuals are less likely to experience stress and show symptoms of mental illness when they have greater support from close relationships with family, friends and relatives, colleagues, and communities than those who do not[14]. Therefore, social support systems must be strengthened in interaction with others through the formation of active social relationships and role participation. This can be a factor influencing PTG in early adults, especially since social support has been shown to have a mediating effect in the relations between post-traumatic crisis and PTG in disaster victims, can lead to PTG through social support[6], and so on.

And the meaning in life, which can be said to be a positive variable, is an indicator of psychological health and acts as a variable that has an important change on the quality of life (QOL) and the sense of well-being. Therefore, discovering the meaning of life helps people undergoing stressful events

psychologically adapt well. The exertion to find the meaning in life, to find its meaning in the adversity or pain experienced in life, becomes an opportunity for growth and a strength to lead the life[15]. The higher the meaning of life of college students and ordinary people, the higher the degree of PTG[16]. Based on this result, a firm awareness of the meaning of life in early adulthood will act as an important variable in the process of transition to a positive life direction in the future.

On the other hand, there is a fear about intimacy, which is the negative effect that can occur after trauma. An important socio psychological development task, especially in early adulthood, is to build the foundation of mature interpersonal relationships by forming intimacy with others and developing those abilities[17]. A prior study investigated the post-injury intimacy of university students with parents with disabilities. According to this, intimacy led to PTG through resilience with family members[12]. Conversely, the fear of intimacy negatively affects the formation of intimate relationships[18]. And the fear about intimacy can be the factor which hinders the PTG, so it is necessary to make efforts to reduce it.

Therefore, this study aims to understand the type of trauma in young adults and the degree of PTG. The study was conducted to analyze what factors affect the respondent's PTG using variables of impact of event, self-resilience, social support, meaning in life, and fear of intimacy. The questions of this study were “What were the traumatic events of young adults during the COVID-19 pandemic and what is the degree of PTG? What factors affect PTG? ”

2. Research Methodology

2.1 Research Design

The research design of this study was a descriptive correlational study.

2.2 Respondents of the Study

In this study, two large cities and two small and medium-sized cities were selected for convenience, and young adults living in the area were limited recruitment groups, and the subjects were conveniently expressed through a non-probabilistic expression method. The subjects living in the area are panel members Macromill Embrain (<https://www.embrain.com>), an online research company. Young adults between the ages of 20 and 39 living in the area were used as the finite population. After that, this study applied a non-stochastic expression method to express convenience only for those who agreed to the online survey. Young adults who understood the aim of this study and participated in this study voluntarily were among subjects who accessed through URL (Uniform Resource Locator) for the online survey. Those with mental illness or currently in hospital with acute illness were excluded from the subject group.

The number of samples was calculated based on the previous linear regression analysis study. And, it was calculated using the G*Power 3.1.9.4 program by setting the statistical power for multiple regression analysis as 90%, mid-level effect size (0.15), significance level (0.05), 7 predictive variables (impact of event, ego-resilience, a special person's support, family support, friends' support, meaning in life, fear of intimacy). In addition, the number of samples was 130, considering the fall rate of 20%, and the survey was applied to 156 people. Excluding four unfaithful data, 152 questionnaires were included in the final analysis.

2.3 Research Instruments

2.3.1 Impact of Event

Weiss and Marmar devised a revised version of the Incident Impact Scale in 1997, and Eun et al.[19] used the Korean Version of Impact of Event Scale-Reconstruction (IES-R-K), which proved reliability and validity. For this study, the tool was tested for validity by two nursing professors. The tool consists of a total of 22 questions, each of which measures the recent symptom level on a 5-point scale from 1 to 5 points for 'very little' and 'very much,' meaning that the higher the average rating, the higher the degree of event shock. In Eun et al.[19]'s research, Cronbach's α of the tool was .83 and .96 in this research.

2.3.2 Ego-resilience

Based on the resilience measuring tool of Block and Kremen, the modified version of the resilience measuring tool developed by Alessandri et al. was translated and used by Chang[20]. For this study, the tool was tested for validity by two nursing professors. The tool had a 14 questions, each of which was measured on a 4-point scale from 1 point of 'rarely so' to 4 points of 'very much', meaning that the higher the average rating, the higher the degree of resilience. In the research of Chang[20], Cronbach's $\alpha=0.75$, and in this research it was 0.84.

2.3.3 Social Support

The Korean version of the Multiple dimensional Scale of Perceived Social Support developed by Zimet et al. was used as the measurement tool modified and improved by Chang[20]. For this study, the tool was tested for validity by two nursing professors. The tool consists of 12 questions: 4 questions about the support of a special person, 4 questions about the support of a family member, and 4 questions about the support of a friend. The question used a 5-point scale from 1 to 5 for 'very much' for 'very little,' which means that the higher the average rating, the higher the degree of social support. Cronbach's α was 0.89 during the development. In this research, it was a total of 0.94. For credibility by sub-area, the support of a particular person was 0.91, the support of a family member was 0.91, and the support of a friend was 0.92.

2.3.4 Meaning in Life

The Korean version of Meaning in Life Questionnaire (MLQ) developed by Steger et al. and validated by Won et al.[15] was used. For this study, the tool was tested for validity by two nursing professors. The tool consists of a total of 10 questions, each of which is a 7-point scale from 1 to 7 points from 'rarely so' to 7 points 'very much', meaning that the higher the average rating, the more meaning it has in life subjectively. In Won et al.[15]'s research, Cronbach's α was 0.88, and in this research it was 0.88.

2.3.5 Fear of Intimacy

The Fear of Intimacy Components Questionnaire (FICQ) of Sobral and Costa[21] was translated into Korean by Kwon et al.[17] and a measurement tool that verified validity and reliability was used. For this study, the instrument was tested for validity by two nursing professors. The tool consists of 10 items, and each item is on a 5-point scale ranging from 1 point 'almost not so' to 5 points 'strongly agree'. The higher the average score, the higher the fear. The reliability of the tool in the research of Kwon et al.[17] was Cronbach's $\alpha=0.82$, and it was 0.85 in this research.

2.3.6 Post-traumatic Growth (PTG)

The PTG Inventory developed by Tedeschi and Calhoun was translated into Korean by Song et al.[22] and used as a measure to verify validity and reliability. For this study, the tool was tested for validity by two nursing professors. The instrument has a total of 16 questions, and depending on the degree of agreement with the positive changes after the traumatic experience, the higher the average rating on a

6-point scale. Each item is based on 0 to 5. That is, 'I haven't experienced this change' (0 points), 'I have experienced this change to a very small degree' (1 points), 'I have experienced a little change' (2 points), 'I have experienced a normal degree of change' (3 points), 'I have experienced a lot of changes' (4 points), and 'I have experienced so much' (5 points). The higher the average rating, the more positive changes after the trauma have been experienced. In Song et al.[22]' study, Cronbach's α was 0.94, and 0.95 in this research.

2.4 Data gathering Procedure

The collection of data in this study was conducted from February 23, 2022 to 28, 2022. First of all, the contents of the study plan and questionnaires were deliberated and approved by the Institute of Review Board in the K National University. The data collection procedure was conducted based on Chang's[23] data collection procedure, which was collected online. Since then, the contents of the questionnaire have been sent to Macromill Embrain, a company specializing in the collection of data from online questionnaires, which have been created as online questionnaires. In order to collect the data, the study wanted to gather members of the Macromill Embrain panel who thought they had experienced the impact of events. Therefore, the study emailed the panels to recruit candidates. Before filling out the questionnaire, the research subjects were informed that the aim and methods of this research, the confidentiality of personal information, and that it's not possible to use it outside the aim, and that they can freely stop filling out the questionnaire at any time during the survey, and then conducted and completed the questionnaire. The data collection was carried out by an online questionnaire, so in the process of receiving an IRB, the permission was obtained by submitting a written consent waiver. To complete the questionnaire it took 10-15 minutes and a small coupon was presented to express appreciation.

2.5 Data Analysis

Data was analyzed using the SPSS® statistics for windows 25.0 program (IBM Corporation, Armonk, NY, USA).

- The respondents' general characteristics, incident shock, resilience, social support, meaning of life, fear of intimacy, and degree of PTG were obtained by descriptive statistics as percentages, averages, and standard deviations.
- A t-test was performed for differences in the degree of PTG of the respondents by general characteristics, and the Scheffé test was performed for ANOVA and post-verification tests. Prior to the t-test, the homogeneity of the variance between the load stages was first identified. As a result of the analysis, it was used that if the mother variance of the two groups is homogeneous, equal variance is assumed, and if it is not homogeneous, equal variance is not assumed.
- Correlations between event shock, resilience, social support, meaning in life, fear of intimacy, and PTG of respondents were analyzed by Pearson's correlation coefficient.
- Factors affecting respondents' PTG was performed with stepwise multiple regression after multicollinearity diagnosis.

2.6 Ethical Principles

The study submitted a research proposal to IRB of K National University for ethical consideration of the subject prior to the commencement of the study, and was exempt from deliberation and consent.(KNU_IRB_2022-16). The researcher informed the participants that they were free to stop the study at any time if they did not want to, and there was no disadvantage accordingly. The collected data

was stored in a personal USB that can only be used by researchers and kept in a personal lock cabinet, and the data will be deleted after 3 years have passed since the end of the research. Questionnaires and coding data created by the online specialized company (Macromill Embrain, www.embrain.com)'s own system are stored in the company's internal DB (Database) for 3 months after the research is completed, and the data remaining on the workers' PCs is automatically deleted after 3 months, so the ethical aspects of anonymity and confidentiality are considered as much as possible.

3. Results

3.1 General Characteristics of Respondents

Results of the study revealed that the general characteristics of respondents were Table 1. The total number of respondents was 152. Men and women was 50% (76 people) each. Respondents in their 20-29 years and 30-39 years was 50% (76 people) each. The average age was 29.8 ± 5.4 years. In residence, the population living in the city is 59.2% (90 people). Regarding education, there were 65.1% (99 people) who had graduated from college or university. There were 78.3% (119 people) with no spouse. There were 66.4% (101 people) with no religion. In occupation, 77% (117 people) responded that "I have a job." Respondents who were in moderate economic status accounted for 63.8% (97 people). In health status, 71.1% (108 people) who evaluated themselves as average or good [Table 1].

[Table 1] General Characteristics of Respondents and Differences in PTG by General Characteristics

(N=152)

Variables	Classification	n	%	PTG		t/F	P value Scheffe test
				Mean	SD		
Gender	Men	76	50.0	2.78	1.06	2.02	0.045
	Women	76	50.0	2.43	1.07		
Age (years)	20-29	76	50.0	2.50	1.13	-1.25	0.215
	30-39	76	50.0	2.71	1.01		
Residence	City	90	59.2	2.70	1.07	1.02	0.362
	Province	53	34.9	2.51	1.09		
	Town	9	5.9	2.24	1.10		
Education	High school	43	28.3	2.67	1.01	1.09	0.338
	College- or university	99	65.1	2.62	1.07		
	Graduate school	10	6.6	2.13	1.09		
Spouse	Yes	33	21.7	2.76	1.01	0.91	0.363
	No	119	78.3	2.56	1.11		
Religion	Yes	51	33.6	2.70	0.97	0.76	0.451
	No	101	66.4	2.56	1.13		
Occupation	Yes	117	77.0	2.65	1.06	0.97	0.335
	No	35	23.0	2.45	1.16		
Economic status	Low	50	32.9	2.62	1.03	0.30	0.742
	Moderate	97	63.8	2.61	1.11		
	High	5	3.3	2.24	0.95		
Health status	Bad	44	28.9	2.13	0.99	9.92	<0.001
	Average	43	28.3	2.50	1.13		
	Good	65	42.8	3.00	1.06		

3.2 Comparison of Differences in PTG by the General Characteristics of Respondents

Results of the study revealed that differences in PTG by general characteristics of respondents were

Table 1. PTG of respondents showed significant differences according to gender ($t=2.02$, $p=0.045$) and health status ($F=9.92$, $p<0.001$). Young male adults had a higher degree of PTG than young female adults, and the higher the economic level, the higher the degree of PTG [Table 1].

3.3 Types and Time of Event among Respondents

Results of the study revealed that the types and time of events of respondents were Table 2. The respondents responded multiple times about the types of incidents they experienced. Traffic accidents accounted for 59.9% (91 people), family and relatives' deaths were 52.0% (79 people), COVID-19 experiences were 17.1% (26 people), sexual abuse was 11.8% (18 people), industrial accidents were 9.2% (14 people), natural disasters were 8.6% (13 people), and physical abuse was 6.6% (10 people). Regarding the time of the most recent incident, it was 11.2% (17 people) for 1 month ago, 13.2% (20 people) for after 1 month - 6 months ago, 11.2% (17 people) for after 6 months - 12 months before, 14.5% (22 people) for after 12 months - 24 months before, and 50% (76 people) for after 24 months - 36 months before [Table 2].

[Table 2] Types and Time of Event among Respondents

Variables	Classification	n	%
Types of event*	Traffic accidents	91	59.9
	Death of a family member or relatives	79	52.0
	COVID-19 pandemic	26	17.1
	Sexual abuse	18	11.8
	Industrial accidents	14	9.2
	Natural disasters	13	8.6
	Physical assault	10	6.6
Time of event	1 month ago	17	11.2
	1-6 months	20	13.1
	6 - 12 months	17	11.2
	12-24 months	22	14.5
	24-36 months	76	50.0

* Multiple responses

3.4 Degree of Impact of Event, Ego-resilience, Social Support, Meaning in Life, Fear of Intimacy, and PTG of Respondents

In the p value it was greater than 0.05, the skewness was -0.78 to 0.27 . In the absolute value it was less than 2, and in the kurtosis it was -0.69 to 0.71 , satisfying the univariate normality assumption of the sample in the Kolmogorov–Smirnov normality test of all variables. Results of the study revealed that the level of the PTG and related variables of respondents were Table 3. The mean score for the incident shock of the subject was 2.51 ± 0.94 . The average rating for resilience was 2.77 ± 0.48 , and the average rating for social support was 3.84 ± 0.82 , of which the support of a particular person was 3.90 ± 0.90 . The family's support was 3.81 ± 0.99 . The friend's support was 3.80 ± 0.91 . The mean rating for Meaning of Life was 4.73 ± 1.02 , the average rating for fear of intimacy was 3.33 ± 0.70 , and the average rating for PTG was 2.60 ± 1.08 [Table 3].

[Table 3] Degree of Impact of Event, Ego-resilience, Social Support, Meaning in Life, Fear of Intimacy, and PTG of Respondents (N=152)

Variables	Categories	Mean	SD	Range
Impact of event		2.51	0.94	1-5
Ego-resilience		2.77	0.48	1.57-4
Social support	Significant others	3.90	0.90	1-5
	Family	3.81	0.99	1-5
	Friends	3.80	0.91	1-5
	Total	3.84	0.82	1.70-7
Meaning in life		4.73	1.02	1.10-1.8
Fear of intimacy		3.33	0.70	1-5
Post- traumatic growth		2.60	1.08	0-5

3.5 Relations of Impact of Event, Ego-resilience, Social Support, Meaning in Life, Fear of Intimacy, and PTG of Respondents

Results of the study revealed that the correlation between the respondent's PTG and other variables were Table 4. PTG in subjects had a statistically significant static correlation between resilience ($r = 0.49$, $p < 0.001$), support for a particular person ($r = 0.36$, $p < 0.001$), support for family ($r = 0.33$, $p = 0.001$), support from friends ($r = 0.38$, $p < 0.001$), and meaning of life ($r = 0.56$, $p < 0.001$). There was a statistically significant correlation negatively with event shock ($r = -0.37$, $p < 0.001$) and fear of intimacy ($r = -0.27$, $p = 0.004$). In other words, the more resilient the subject, the more they received the support of a special person, the more they were supported by family and friends, the higher the degree of PTG, and the more positively they had a sense of life, the higher the degree of PTG. On the other hand, the lower the incident impact and the less fear of intimacy, the higher the degree of PTG [Table 4].

[Table 4] Relations of Impact of Event, Ego-resilience, Social support, Meaning in Life, Fear of Intimacy, and PTG of Respondents

Variables	Impact of event $r(p)$	Ego-resilience $r(p)$	Social support from significant others $r(p)$	Social support from family $r(p)$	Social support from friends $r(p)$	Meaning in life $r(p)$	Fear of intimacy $r(p)$	PTG $r(p)$
Impact of event	1							
Ego-resilience	-0.22 (0.008)	1						
Social support from significant others	-0.25 (0.002)	0.32 (<0.001)	1					
Social support from family	-0.26 (0.001)	0.36 (<0.001)	0.64 (<0.001)	1				
Social support from friends	-0.19 (0.021)	0.32 (0.001)	0.77 (<0.001)	0.54 (<0.001)	1			
Meaning in life	-0.20 (0.014)	0.49 (<0.001)	0.42 (<0.001)	0.35 (<0.001)	0.39 (<0.001)	1		
Fear of intimacy	0.25 (0.002)	-0.07 (0.386)	-0.04 (0.609)	-0.04 (0.628)	0.05 (0.506)	-0.07 (0.410)	1	
PTG	-0.37 (<0.001)	0.49 (<0.001)	0.36 (<0.001)	0.33 (<0.001)	0.38 (<0.001)	0.56 (<0.001)	-0.27 (<0.001)	1

3.6 Factors Influencing the PTG of Respondents

In order to confirm the relative influence of factors explaining PTG, gender and health status variables

that showed significant differences among general characteristics were analyzed by converting them into dummy variables. In addition, a phased multiple regression analysis was conducted by injecting independent concepts such as impact of events, ego-resilience, support of a special person, support from family, support from friends, meaning in life, and fear of intimacy.

As a result of analysing the residual plot for the test of equal variances, the equal variances were confirmed, and the Durbin-Watson value for verifying the independence of the residuals was 1.90, which satisfied the independence assumption. A P-P plot to confirm the independence was examined, and the results showed a normal distribution in order to verify the normality of the error term, In the analysing of multicollinearity between independent concepts, the tolerance limit (tolerance) was 0.70-0.93 or more. The VIF of the first variables was 1.07-1.43, that did not exceed 10, so the basic assumptions of equal variance and normal distribution of the residuals were satisfied.

Results of the study revealed that the factors influencing PTG of the respondents were Table 5. It was analyzed the relative influence of influencing factors on PTG in young adults in a stepwise regression analysis. The model of regression analysis was statistically significant ($F = 25.56, p < 0.001$). Factors influencing PTG were the meaning in life ($\beta = 0.38, p < 0.001$), ego-resilience ($\beta = 0.28, p < 0.001$), and support of friends ($\beta = 0.17, p = 0.020$), impact of event ($\beta = 0.13, p = 0.046$). The explanatory power of the four variables for PTG was 41.0%. The most influential variable was the meaning in life [Table 5].

[Table 5] Factors Influencing the PTG of Respondents

Variables	B	SE	β	t	p	Collinearity	
						Tolerance	VIF
Constant	-2.01	0.50		-4.03	<0.001		
Meaning in life	0.40	0.08	0.38	5.05	<0.001	0.70	1.43
Ego-resilience	0.63	0.17	0.28	3.82	<0.001	0.73	1.37
Social support from friends	0.19	0.08	0.17	2.35	0.020	0.82	1.22
Impact of event	0.15	0.08	0.13	2.01	0.046	0.93	1.07
$R^2=0.41, \text{Adj. } R^2=0.39, F=25.56, p<0.001$							

B=unstandardized regression coefficient; SE=standardized error; β =standardized Regression coefficient

4. Discussion

This study attempted to analyze the type of trauma experience, the degree of PTG, and the factors influencing PTG of young adults during the COVID-19 period. Figure 1 is the result of an influencing factors analysis.



[Fig. 1] Factors Influencing the PTG of Respondents

First, in the study results, the level of PTG in early adults was 2.60 on a 6-point scale of 0-5 points. In the Song et al.[22] study, which used the same tools as this study, the degree of PTG was 2.63 on average for the general population, and the average rating was 2.18 for the PTSD group. In addition, Park's[24] study of adults with interpersonal trauma experiences was conducted. As a result, the degree of PTG was 2.56 out of 6 points on a 6-point scale, so the results of this research were supported. The participants of this research are those who have experienced one or more events or accidents, mainly in car accidents, the death of family or relatives, or COVID-19. Compared to prior studies, there is common point that they had traumatic shocks. Trauma is a stressful experience that causes serious pain and discomfort that an individual subjectively experiences. A traumatic experience is an experience in which an individual is traumatized by a particular event, directly or indirectly that can cause a person to feel a strong sense of fear, and helplessness[6]. Traumatic events include farewell with a meaningful person or death, illness, accident, disaster, sexual abuse, and violence, as well as disaster such as COVID-19 pandemic that all people in the world have been experiencing in recent years. The results of this study also show this trend. Therefore, it is necessary to mediate such an experience so that it is not a shock. The degree of PTG was identified mainly in these subjects, but the degree of growth was not high. In view of this, it can be said that it is necessary to repeatedly study the types, timing and subjects of future events and to scale the results of PTG in young adults.

And, PTG by the general characteristics of the participants showed differences depending on the gender and health status. In terms of gender, men had higher PTG scores than women, and Park's[25] study also supported this finding of the study, as men had higher PTG scores than women. Meanwhile, studies by Chang[20] and Sim et al.[6] did not show differences by gender. Like this, each study shows each different result, so it is necessary to repeat conducting studies about differences in PTG by the general characteristics of the subjects in the future. Currently, the world is analyzing that the anxiety and stress caused by the impact of events such as COVID-19 are higher for women than for men and that it is due to the difficulty of activities and interpersonal interactions that sustain women's lives[4]. Therefore, it is necessary to continuous study PTG according to gender at the time of prolonged COVID-19. Next, there was a difference in PTG depending on the state of health. Although direct comparisons are difficult due to the lack of research on this. Since health status is a source of increased social activity, broadening the range of interests, and having the ability to cope effectively when faced with a difficult situation[26], it is thought that there is also a difference in PTG depending on the health condition.

PTG in subjects showed a positive correlation between ego-resilience, social support, support from special people, family and friends, and the meaning in life, while there was a negative correlation with event shock and fear of intimacy. Ego-resilience was positively correlated with PTG. Chang[20]'s study of college students found that resilience was reported to have a significant influencing on PTG, consistent with the results of this study. Moreover, several prior study[13] have shown that there is a close relationship between resilience and PTG, which can further increase PTG. Ego-resilience has a mediating effect that can achieve PTG as it realizes and understands the meaning and purpose of stress situations, accepts new situations, and provides positive communication around positive emotions[27]. Therefore, it gives the power to grow even in the situation of trauma, so it is necessary to help acquire improved ego-resilience.

In the research of caring of nurses for COVID-19 infected patients[28], nurses caring for patients with novel infections experienced trauma, and the more they recognized social support from family and peers, the higher the degree of PTG. Those who experienced the deaths of close people were also troubled and shocked, but in particular, the help of family and friends and multifaceted social support were reported to have played an important role in protective role in protecting them[5]. Therefore, these research results support the results of this study. PTG can be further stimulated, especially if the social support received at the time of trauma experience is stable and sustainable. And, it is necessary to establish a community network infrastructure for active social relationship formation and role participation.

The meaning in life was correlated with growth and quantity after trauma. A study by Jeong and Kim[29], who analyzed the factors that affect growth after being shocked by an event caused by illness, also showed that wish, meaning in life, and social support positive correlated with PTG. In particular, finding the meaning in life from a new perspective after experiencing a threatening event can be considered to have a significant impact on a person's psychological adaptation[16], in the same context as the results of this study. As a result, the meaning in life is a subjective feeling about the meaning in life itself, and it is necessary to seek mediation methods that bring about PTG through cognitive changes in the meaning in life as a cognitive variable[13] that has an important impact on PTG as a motivation to discover meaning in one's own life.

Impact of event and fear of intimacy showed a negative correlation with PTG. Impact of event is a psychological experience that occurs after trauma that allows you to encounter a new life after a traumatic event. In the process, you may become distressed by constantly recalling a traumatic event, while you may learn lessons you didn't know before and gain new resources. Therefore, since shocks due to events can increase the PTG, or conversely lower it, additional systematic studies are necessarily required. On the other hand, in the relations between fear of intimacy and PTG, Sim et al.[6] noted that people who have grown up after trauma recognize the importance of intimate relationships. For individuals to experience and maintain intimacy in interpersonal relationships is important throughout their lives. However, the importance of intimacy in young adulthood is becoming more prominent[17]. In particular, the fear in intimate relationships affects the relationship in negative ways, and makes you not be able to receive the psychological benefits from intimate relationships, which hinders your PTG. Adaptation and health can be improved if individuals form intimate relationships where they can receive support in stressful situations such as incident shocks. Therefore, young adults need to think about the events of their lives, understand where their fears come from, accept themselves as a valued human being, increase their self-esteem, communicate with others, and seek the support and counseling of experts to deal with them appropriately[30].

There are the meanings in life, ego-resilience, the support of friends, and the impact of events as factors influencing PTG in young adults. Among these, the factor that had the most significant impact on the PTG of early adults was the meaning of life. A study conducted by Kim and Yang[13] also showed that the meaning of life among an individual's cognitive variables to increase PTG was an important influencer on PTG, which supported this study. It is also said that giving an individual's life an overall life meaning and value and giving meaning to a particular situation or event also has a positive effect on PTG[16]. Therefore, for PTG, it is important to mediate so that the person is aware of the positive meaning of the traumatic experience and also to perceive the experience itself positively. In addition, resilience has been a major variable in predicting PTG in many studies. The higher the individual's resilience, the more they experienced PTG[12][20][26], which is a variable that influences the meaning of life and the way they actively cope with stress, as well as a driving factor in PTG, helping them to overcome difficulties and adapt well to stressful environments[13]. Therefore, in order for them to restore this mental health and bring about PTG, it is necessary to provide programs to enhance resilience through psychological support.

In addition, support from friends has been shown to be a factor influencing PTG. This is in line with this study, as shown in studies by Zhou et al.[31] that social support affects PTG. However, from the perspective of a study that found PTG more difficult when experiencing traumatic events in interpersonal relationships, social support is a very important factor in PTG. Thus, if the traumatic trauma experience is a painful situation, but the person perceives that they have social support, the pain can be tolerated and can be a cognitive process on a positive side. Finally, it was found that the impact of event is a factor which have impact on the PTG. The results of the research by Sim et al.[6] presented that the high pain caused by the traumatic experience in subjects led to physical and mental symptoms such as depression, anxiety, and physical discomfort, which increased the perception of subjective pain

and inhibited PTG. Therefore, it can be said that positive cognitive changes that reduce the impact of the event are important.

Through these results from the study, we could confirm that the meaning in life, resilience, support of friends, and event shock can be the factors which have impacts on the PTG in early adults. Therefore, after a traumatic experience, the individual should make an effort to understand what happened to him/herself and to reduce the emotional pain that comes with it. The process of cognitive understanding of traumatic experiences is essential. And there is a need for strengthening of social support systems, especially active coping processes that reconstruct and understand from a new perspective after trauma, such as establishing relationships with friends.

This research is meaningful in that it revealed the influencing factors to lead to PTG in young adults. However, the study was conducted as an online survey and only those who voluntarily wanted to participate among early adult members in some regions were the subjects, and the possibility that this was biased in deriving the results of the study cannot be completely excluded. In addition, since it was targeted only at early adults in some regions, it is necessary to be careful to interpret it on behalf of early adults nationwide.

5. Conclusions

This research attempted to check the type of trauma experience, the degree of PTG, and the factors influencing PTG of young adults during the COVID-19 period. The key factors influencing PTG in young adults were the meaning in life, resilience, support from friends, and impact of event. Healthcare providers need help for PTG in young adults. In other words, it is necessary to help young adults recover from psychological damage caused by trauma experience and bring positive changes such as PTG. It is necessary to devise ways to reduce the impact of the event, and to prepare a mindfulness program and a program to improve resilience that can realize the meaning of life. In addition, it should be supported to form an intimate social network such as friends. The results of this research can provide a theoretical basic data for nursing intervention and contribute to nursing research and practical development by identifying the effecting factors to promote PTG for young adults with trauma experience. The suggestions are as follows. Since it is a convenience sampling method, there is a limit to generalization, so it is suggested to overcome methodological vulnerabilities by reflecting the characteristics of the population. When developing nursing interventions for positive post-traumatic growth, it is necessary to study the relevance and influence of new variables, including the influencing variables of this study.

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