



THE INFLUENCE OF BIG FIVE PERSONALITY, SOCIAL SUPPORT, AND GENDER ON POST-TRAUMATIC GROWTH IN CENTRAL SULAWESI NATURAL DISASTER SURVIVORS

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Abstract

Post-traumatic growth (PTG) is the positive growth of individuals after facing a life crisis due to a traumatic event. This study aims to determine the role of big five personalities, social support, and gender towards PTG of Central Sulawesi natural disaster survivors. This research uses the descriptive quantitative method. The participants in this study were 128 survivors of natural disasters in Central Sulawesi and adults, 43 males and 85 females. The instruments used in this study were the post-traumatic growth scale, the IPIP-BFM-25 Indonesia scale, and the social support scale. The data analysis technique used in this study was covariance analysis with SPSS 21.0 for windows software. This study indicates that big five personalities, social support, and gender play a role simultaneously and significantly towards PTG with coefficient $F = 15,600$ ($p = 0,000$; $p < 0,01$). Extraversion has a significant positive role in PTG with coefficient $F = 20,760$ ($p = 0,000$; $p < 0,01$), agreeableness has a significant positive role towards PTG with coefficient $F = 50,506$ ($p = 0,000$; $p < 0,01$), and conscientiousness has significant positive role in PTG with coefficient $F = 1350,684$ ($p = 0,000$; $p < 0,01$). This study shows the big five personalities, social support, and gender simultaneously have a role in the PTG development of natural disaster survivors. Emotional stability, intellect, social support, and gender do not have a direct role in PTG. Survivors have a high chance to reach PTG with high extraversion, agreeableness, and conscientiousness.

Keywords: Big Five Personality, Gender, Post-Traumatic Growth, Social Support

INTRODUCTION

A disaster is an event or series of events that threatens and disrupts people's lives and livelihoods caused by natural factors, non-natural factors, and human factors, resulting in human casualties, environmental damage, property losses, and psychological impacts. On September 28, 2018, an earthquake with

a magnitude of 7.4 occurred in Central Sulawesi, including Palu, Donggala, Sigi, and Parigi Mautong. The quake triggered a tsunami along the Talise coasted in Palu and Donggala with a base of 500 meters [1].

The shaking caused by the earthquake resulted in liquefaction at Balaroa and Petobo in Palu and Jonogedi in Sigi. The earthquake shaking also caused land





subsidence in Donggala. The total damage and loss in Central Sulawesi reached 20.89 trillion rupiahs, the number of dead and missing people reached 4,340 people, and 172,635 people were have forced to evacuate [1].

Article 57 of the Republic of Indonesia Law Number 24 of 2007 states that the government undertakes post-disaster management. Post-disaster management is handle in two stages, namely rehabilitation and reconstruction. Social psychological recovery is one of the post-disaster rehabilitation activities stated in Article 58 of the Law of the Republic of Indonesia Number 24 of 2007 [1].

Disaster research is usually still focused on the poor effects of disasters. The results of a preliminary study by researchers using google form into Central Sulawesi disaster survivors as many as 67 people showed that there were survivors that still felt sad, anxious, and afraid when remembering the natural disaster events they experienced. Behind their sadness, the survivors also stated that they felt grateful because they can live and still live with family. In addition, some survivors said that spirituality increased and felt closer to God, wished to become a better person and strived to be more advanced in the future, and increased desire to share sorrows and help others. These initial findings reinforce that after a long time happen disaster events can make survivors very empowered and developed, even having a positive adjustment to various

shortcomings, losses, and various problems they face.

If individuals can struggle in life crises with taking on lessons from traumatic events will grow become a better person, or we called post-traumatic growth (PTG). PTG is a positive change in an individual towards a higher level after experiencing a traumatic event as a product if can struggle with a high life crisis [2]. PTG is up by five aspects, relating to others, new possibilities, personal strength, spiritual change, and appreciation of life [3]. PTG is a necessary concept to explore because the factors that contribute to the development of PTG are known then possible to design and implement interventions based on the findings obtained for individuals who were currently experiencing a traumatic event [4]. PTG achieved as a result of the struggle with life crises can be manifested in various ways such as improving life in general, making interpersonal relationships more meaningful, increasing the sense of personal power, changing priorities, enriching spiritual life, and existential [5].

Personality is necessary to PTG [6]. Personality is a characteristic of individuals [7]. Big five personalities are personality trait theories that consist of five dimensions. The development initiated by some figures, such as Lewis R. Goldberg, Paul T. Costa, Jr., Robert R. McCrae, and John Oliver P. The theory has experienced extraordinary developments since the 1960s in the





approach to personality through factor analysis models.

The dimensions of the big five personalities include surgency or namely with extraversion have characterized by individuals who blend in with groups, enjoy activities, explore, are warm, and have stable emotions. Agreeableness characteristics are honesty, trust, care for others, humble, forgiveness, and can take shelter others. Conscientiousness characteristics are disciplined, obedient, organized, considerate, and persistent in achieving goals. Emotional stability is the other side of negative feelings and individual tendencies to display emotional stability. Intellect or imagination characteristics such as openness to experience, like to fantasize and has feelings and ideas [8].

Big five personality has an intense role in the PTG process based on previous research [9, 4, 10, 11] because personality affects individuals to deal with stress after a disaster. Big five personality affects the growth of all aspects of PTG, namely relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. Conscientiousness, agreeableness, and openness to experience have a significant impact on PTG. Extraversion, neuroticism, and openness to experience have moderate post-traumatic stress [10].

Big five personalities have a positive influence on dealing with stress by individuals in PTG [12]. Openness has a

significant role in PTG [9]. There is high relationship between extraversion and social support for disaster survivors [13].

People with extraversion tend to express emotion and open with others. So is increased PTG in interpersonal interactions [13]. People with high agreeableness are more helpful and considerate, thus influencing interpersonal competence to deal with problems positively from others [14]. The conscientiousness is necessary for spiritual development, personal strength, and appreciation of life. Conscientiousness can facilitate processing and deal directly with traumatic events related to perceptions of PTG [10].

People with high neuroticism will avoid solving problems and can hinder the process of PTG. People with low neuroticism or have good emotional stability will be better able to achieve PTG [10]. People with openness to future uncertainty could help individuals face an uncertain future so that PTG in individuals is effective [15]. People that open or called intellect/imagination tend to be more optimistic and try to overcome difficulties that predict a high level of PTG [14].

Another factor that has a role in PTG is social support [4, 13, 16]. The social support help to improve the ability to cope with the impacts experienced by individuals so that they can change negative judgments that result in pressure and help individuals redefine and reduce potential losses caused by negatives





situation. An environment that has high social supports can help individuals express emotion to others to vent negative feelings. Individuals who express negative emotions to others will reduce the post-traumatic effects experienced and indirectly contribute to PTG [16].

Gender influences PTG and previous research found women's scores in PTG tend to be higher than men [17, 18, 19, 20, 9]. Women tend to respond empathically to other people that play a significant role in the development of PTG. Women get more benefit from the results of empathetic relationships with other people than men [20].

Women are more likely to be included in the group with high PTG because they tend to think ruminatively (reflecting) than men. Women tend to respond to stressful events with self-introspection than men and do not hesitate to seek support when experiencing a crisis. Men tend to consider seeking help from the surrounding environment a weakness [21].

METHOD

This research is a quantitative-correlational method. This research involved 128 subjects. The participating subjects were survivors of the Palu earthquake, Central Sulawesi, male and female who witnessed and experienced the disaster firsthand, adults ranging from 18 years.

Data collection uses a research scale that is shared using google forms. The

scale used the modified PTG scale was from the Post-Traumatic Growth Scale [22]. This scale has been tested using subject matter experts and factor analysis. The coefficient loading factor shows that the variables are related to each other [22]. The corrected item-total coefficient acquisition for 74 Central Sulawesi natural disaster survivors is in the range 0.305 – 0.719, so this scale amounts to 24 items from 26 items.

Result from the reliability test of the PTG scale with 97 survivors of the earthquake in Bantul, Yogyakarta showed the composite score reliability coefficient was ($\alpha = 0.949$) [22]. The alpha coefficient of this scale obtained from 74 survivors of natural disasters in Central Sulawesi was ($\alpha = 0.850$), so this scale is feasible to use. All items of this scale are favorable and arranged in four alternative answers. The options are namely "I hardly experience" the score is 1, "I rarely experienced" the score is 2, "I many experience" the score is 3, and "I intensely experienced" the score is 4 [22].

Big five personalities have been measured using the Indonesian IPIP-BFM-25 scale [23]. This scale has been adapted from Goldberg [8]. This scale has been tested with content validity, factor analysis, convergent, and discriminant test. The loading factor coefficient showed a range of 0.34 – 0.75 with a satisfy category, so this scale is suitable for use in samples in Indonesia [23]. The corrected item-total coefficient from this scale





obtained by 74 Central Sulawesi natural disaster survivors on extraversion is (0.419 - 0.600). Agreeableness (0.424 - 0.722), conscientiousness (0.443 - 0.641), emotional stability (0.464 - 0.654), and the intellect (0.251 - 0.389), so the number of items on this scale becomes 23 items from 25 items.

Testing the reliability of the Indonesian IPIP-BFM-25 scale on 502 people aged 14 - 46 years and domiciled in Yogyakarta shows the alpha coefficient on the extraversion is ($\alpha = 0.76$), agreeableness ($\alpha = 0.78$), conscientiousness ($\alpha = 0.77$), emotional stability ($\alpha = 0.80$) and intellect ($\alpha = 0.73$) (Akhtar & Azwar, 2018). The reliability test of this scale on 74 survivors of the Central Sulawesi natural disaster showed an alpha coefficient on the extraversion is ($\alpha = 0.687$), agreeableness ($\alpha = 0.739$), conscientiousness ($\alpha = 0.761$), emotional stability ($\alpha = 0.783$), and intellect ($\alpha = 0.470$) as well as composite reliability on all dimensions ($\alpha = 0.860$), so it is feasible to use. The items from this scale are favorable and unfavorable and arranged in five alternative answers, namely "very irrelevant" with a score of 1, "not relevant" with a score of 2, "neutral" with a score of 3, "relevant" with a score of 4, and "very relevant" with a score of 5 [23].

Social support has been measured by aspects of attachment, social integration, value assurance, reliable alliances, and guidance based on the social support scale [24]. This scale has been through an

assessment and evaluation of face validity by experts [24], while the corrected item-total coefficient of this scale obtained from 74 survivors of the Central Sulawesi natural disaster is in the range 0.283 - 0.593, bringing the total number of items on this scale to 14 items from 15 items.

The reliability test from social support scales by 62 students showed an alpha coefficient of ($\alpha = 0.823$) [24]. The alpha coefficient from 74 survivors of natural disasters in Central Sulawesi is ($\alpha = 0.850$), so this scale is feasible to use. Items from this scale are favorable and unfavorable and are arranged in four alternative answers on each item scale, namely "very irrelevant" with a score of 1, "not relevant" with a score of 2, "relevant" with a score of 3, and "very relevant" with a score of 4 [24].

RESULT AND DISCUSSION

Central Sulawesi natural disaster survivors that participated in this study amounted to 128 people and were dominated by women as many as 85 people (66.41%), while male survivors amounted to 43 people (33.59%). The participating disaster survivors are adults.

Age	N (%)
Early adulthood (18 - 40 years)	126 (98,44%)
Middle adult (40 - 60 years)	2 (1,56%)
Total	128 (100%)

Table 1. Research Subjects by Age Range



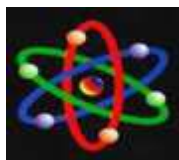


Table 1 shows the survivors that participated are dominant by early adulthood (98.44%).

Profession	N (%)
Student	61 (47,7%)
Employee	51 (39,8%)
Entrepreneur	8 (6,3%)
Housewife	4 (3,1%)
Health workers	2 (1,6%)
Freelancer	1 (0,8%)
Does not work	1 (0,8%)
Total	128 (100%)

Table 2. Research Subjects by Profession

Table 2 shows the survivors that participated dominated by students (47.7%) and followed by employees (39.8%).

Variable	N	Min	Max	M	SD
PTG	128	54	96	80,01	8,564
BFP	128	60	98	78,21	8,257
SS	128	29	56	46,99	5,891
Men	43	-	-	79,47	8,852
Women	85	-	-	80,06	8,420

Note: *M*: mean, *SD*: standard deviation

Table 3. Descriptive Statistics

PTG: post-traumatic growth, BFP: big five personalities, SS: social support.

Table 3 shows that PTG has a minimum value range of 54 to a maximum of 96 and the mean value ($\mu = 80.01$) with $SD = 8.564$. Big five personalities have a minimum value range of 60 to a maximum of 98 and the mean value ($\mu = 78.21$) with $SD = 8,257$. Social support has a minimum value range of 29 to a maximum of 56 and the mean value ($\mu = 46.99$) with $SD = 5.891$. Men and women have a mean range that is not too far.

Women have a mean ($\mu = 80.06$) with $SD = 8,420$ and males have a mean value ($\mu = 79.47$) with $SD = 8.852$.

Score	Level	N (%)
$72 \leq X$	High	104 (80,47%)
$48 \leq X < 72$	Medium	24 (19,53%)
$X < 48$	Low	0 (0%)

Table 4. Categorization of PTG scores

Table 4 shows that the majority of natural disaster survivors have high PTG levels. The results of the descriptive analysis of all PTG aspects show that the new opportunity aspect has a mean value ($\mu = 18.53$), relationships with other people ($\mu = 16.74$), strong personality ($\mu = 16.09$), appreciation for life ($\mu = 14.48$) and spiritual-religious changes ($\mu = 14.02$). This finding shows new opportunity is a dominant aspect in the PTG of Central Sulawesi natural disaster survivors.

BFP	Score	Level	N (%)
E	$18 \leq X$	High	25 (19,53%)
	$12 \leq X < 18$	Medium	92 (71,88%)
	$X < 12$	Low	11 (8,59%)
A	$18 \leq X$	High	101 (78,91%)
	$12 \leq X < 18$	Medium	27 (21,09%)
	$X < 12$	Low	0 (0%)
C	$18 \leq X$	High	90 (70,31%)
	$12 \leq X < 18$	Medium	38 (21,09%)
	$X < 12$	Low	0 (0%)
ES	$18 \leq X$	High	7 (5,47%)
	$12 \leq X < 18$	Medium	62 (48,44%)
	$X < 12$	Low	59 (46,09%)
I	$11 \leq X$	High	23 (17,97%)
	$7 \leq X < 11$	Medium	101 (78,91%)
	$X < 7$	Low	4 (3,13%)

Note BFP: big five personalities, E: extraversion, A: agreeableness, C: conscientiousness, ES: emotional stability, I: Intellect.

Table 5. Big Five Personality Score Categorization





Table 5 shows the natural disaster survivors mostly have high levels of agreeableness and conscientiousness. They have moderate levels of extraversion, emotional stability, and intellect. The descriptive analysis from all dimensions of big five personalities shows agreeableness has a mean value ($\mu = 20.63$), conscientiousness ($\mu = 19.76$), extraversion ($\mu = 15.81$), emotional stability ($\mu = 12.1$), and intellect ($\mu = 9.79$). This finding shows mostly Central Sulawesi natural disaster survivors have agreeableness and conscientiousness personalities.

Score	Level	N (%)
$51 \leq X$	High	29 (3,91%)
$33 \leq X < 51$	Medium	94 (73,44%)
$X < 33$	Low	5 (22,66%)

Table 6. Social Support Score Categorization

Table 6 shows that the majority of natural disaster survivors have a moderate level of social support. The results of descriptive analysis on all aspects of social support show attachment and guidance have a mean value ($\mu = 10.15$), reliable alliance ($\mu = 10.09$), value assurance ($\mu = 9.88$), and social integration ($\mu = 6.76$). This finding shows social support from the Central Sulawesi natural disaster survivors is from attachment, guidance, reliable alliances, and value assurance.

After going through a series of assumption tests, the result show distribution of data have normal, the relationship between variables is linear,

and there is no multicollinearity. The hypothesis is measured using ANCOVA with the results as shown in Table 7.

PTG	F	$p < 0,01$	R^2
Corrected model	15,600	0,000**	0,476
E	20,760	0,000**	0,091
A	50,506	0,000**	0,292
C	1350,684	0,000**	0,339
ES	8,516	0,647	0,002
I	41,345	0,314	0,027
SS	4,306	0,745	0,053

Note: * $p < 0,05$; ** $p < 0,01$.

Table 7. Covariance Analysis Test Results

E: extraversion, A: agreeableness, C: conscientiousness, ES: emotional stability, I: Intellect, SS: social support.

The results of data analysis in Table 7 show that the corrected model has an F -count value = $15.600 > F$ -table = 2.09 ($p = 0.000$; $p < 0.01$), so big five personalities, social support, and gender have a simultaneous effect and very significant to PTG. This finding is in line with the previous [2, 9, 25, 4, 12, 26, 10], and the different personality may influence by differences in individual responses to traumatic events [27]. There are three dimensions of big five personalities that have a significant positive effect on PTG. That is extraversion, agreeableness, and conscientiousness. Openness/intellect and emotional stability only have a small positive relationship with PTG.

A safe and positive environment can encourage survivors to convey the experience to the present and activate the process of making meaning by narrating stories, even possibly finding positive aspects of the bad experiences experienced





[28]. Individuals that don't self-oriented and interact with others can enlarge social support networks which then become opportunities for PTG development and stress reduction [13]. Women tend to be more courageous in dealing with stressful or traumatic experiences, while men tend to be perceived as weak when seeking support. Gender roles in PTG can be mediated by coping behavior [28].

The coefficient of R^2 is 0.476. The result indicates the contribution of the big five personalities, social support, and gender on PTG only 47.6% and 52.4% have influenced by other factors. Other factors affect PTG, such as coping strategies [22, 28, 4, 14, 9] and post-traumatic stress (PTS) [10, 12]. Coping improves mental health after experiencing a traumatic event [4].

Table 7 shows that extraversion has an F -count = 20,760 > F -table = 2.09 ($p = 0.000$; $p < 0.01$), so it can be stated that extraversion has a very significant role on PTG. This finding is relevant to previous findings that are extraversion has a positive effect on PTG [30, 3, 14]. Extraversion has a positive relationship with both aspects of PTG, namely new possibilities and personal Strength [2]. Extraversion has identical with positive emotions that play a role in the achievement of individual PTG [11, 28, 31]. Extraversion can help individuals cope with the stress of traumatic events by using more functional coping strategies so

that individuals can achieve all aspects of PTG [10].

Individuals with extraversion can take the positive side of the negative situation that they experienced [31]. Extroverted individuals tend to easily express themselves to others which then increases PTG in interpersonal interactions. In addition, individuals with this personality tend to be optimistic. They can focus on urgent goals then direct the development of PTG. Individuals who easily express themselves and interact with the surrounding environment can play a role in the PTG aspects development, namely relating to others, personal strength. Optimism plays a role in aspects of new possibilities and appreciation of life.

This study found that agreeableness personality has a role in PTG. The result is in line with the previous studies that stated individuals with PTG experience have high agreeableness [12, 11, 30]. Individuals who achieve PTG have high empathy, show altruism, trust, pro-social attitude, compassion, politeness. They are manifestations of empathy behavior [12].

The empathy behavior from individuals with agreeableness can improve PTG aspects, namely relating to others and appreciating life. They can develop good interactions with others, such as seeking or giving social support to others, respect for other people and their lives.

Agreeableness has a significant influence on new possibilities, spiritual





change, relating to others, and appreciation of life from PTG [10]. Individuals with agreeableness tend to accept the positive changes after experiencing traumatic events. Agreeableness in individuals is related to interpersonal competence so that individuals can learn positive ways to overcome problems from other people [14], namely by increasing aspects of relating to others, personal strength, and appreciation of life. Agreeableness is a predictor of change from relating to others and self-perception so that individuals can achieve PTG [32].

This study also found that conscientiousness has a role in PTG. This finding is in line with previous studies that individuals who have PTG experience have high conscientiousness [12, 11, 14]. Individuals with this personality are controlled inner feelings about the right things, careful, considerate, and have integrity. The regularity possessed by individuals with this personality affects the development of PTG. Conscientiousness influences the total score of PTG and the development of the three aspects, namely spiritual change, personal strength, and appreciation of life [10].

High conscientiousness interacts to reduce the severity of stress, and individuals become more courageous and do not shy away from the problems they are experiencing [10]. This matter increases all aspects of PTG, namely relating to others, new possibilities, personal strength, spiritual change, and

appreciation of life. Conscientiousness can be a facilitator in the growth process. Conscientiousness helps the construction process to create reality and find new perspectives [28]. It also increases the new possibilities aspect because individuals can recognize new opportunities.

The results found conscientiousness has a 22.4% effective contribution and 46.6% relative contribution to PTG. Agreeableness has a 17.87% effective contribution and 37.2% relative contribution. Extraversion has a 3.82% effective contribution and 7.9% relative contribution. This result shows conscientiousness and agreeableness have effective and relative contributions are dominant towards PTG.

Individuals with high conscientiousness and agreeableness can use coping strategies. They can use problem-focused coping and emotion-focused coping to deal with the impact of pressure from traumatic events to improve almost all aspects of PTG. Extraversion can play an indirect role in PTG and mediate by positive coping [14].

Personality factor that does not play a role in PTG is emotional stability (F -count = 8.516 > F -table = 2.09 ($p = 0.647$; $p > 0.05$), so it can be stated that emotional stability has no role in PTG survivors of natural disasters. Emotional stability may be related to other variables, such as the severity level. The studies have shown that changes in spiritual change and relating to others in individuals with high and low





emotional stability or neuroticism are influenced by the severity of PTS. High neuroticism is a negative side of emotional stability and the difficulty in displaying more positive emotions. Individuals with low neuroticism will be more courageous in overcoming the impact of traumatic events even though they are experiencing very high levels of stress [10].

Emotional stability has a negative role in spiritual change and relating to others in PTG [10]. An individual with neuroticism has a negative role in PTG development [30]. Neuroticism does not correlate with PTG [2]. Neuroticism is more associated with ineffective coping strategies, such as hostile reactions, escape fantasies, self-blame, withdrawal, wishful thinking, passive and full of doubt [27].

This study also found intellect did not play a role in PTG and line with previous findings [12]. The study found openness to experience/intellect did not directly affect PTG but have moderated by post-traumatic stress (PTS). On appreciation of life aspect, openness to experience or intellect facilitates individuals to grow when experiencing PTS with the high severity level. This trait helps individuals to struggle but must be under high pressure of traumatic impact [10].

If PTS is low, openness or intellect with high scores does not seem to facilitate appreciation of life. Positive cognition coping was found to be a mediator of openness/intellect on PTG [14], adaptive coping became a mediator between

openness/intellect with PTG [6]. Therefore, to measure the role of openness/intellect on PTG should use a coping variable and PTS as mediation and moderator.

Social support does not play a role in PTG independently. The five aspects of social support show they have no impact on the PTG of natural disaster survivors. It could be due to the need for other variables such as coping strategies. The previous researchers stated that coping became a mediator variable between social support and PTG in disaster survivors [17]. Social support acts as a moderating variable [22]. The results support buffering hypothesis which states that social support will arise when individuals are under high stress [33].

Social support is a moderator between stress and Islamic religious coping in natural disaster survivors. Social support influences individuals in choosing coping strategies to be used in dealing with problems. PTG is moderating social support, and mediating Islamic religious coping besides social support tends to play a role in helping individuals carry out coping strategies so then reduce the disadvantageous effects of stress experienced [22].

There are two hypotheses in social support, buffering that arises when under stress, while the direct effects hypothesis states that individuals with high social support feel loved and appreciated [33]. The results found tend to be more





supportive by buffering hypothesis and reject the direct effects hypothesis supported by the researchers. Besides results, the descriptive analysis showed majorities of disaster survivors had moderate social support scores, so this stated the direct effects hypothesis is not appropriate to measure the support relationship social with PTG.

Types of social support can separate more specifically to measuring PTG to be more effective [22]. The effect of each subtype of social support on PTG is highlight separately because emotional and instrumental support have varying effects on an individual's ability to achieve PTG [33]. Instrumental support is a unique predictor of PTG, and examining the contribution of social context variables separate is very important. In addition, social support directly or indirectly to PTG needs to research for describing in more detail the supportive or non-supportive interactions in the various components. So that specific factors and mechanisms that increase or inhibit the development of PTG in individuals can be identified [33].

The researchers also measured the differences in PTG by gender and can show in Table 8 below.

X & Y	N	M	SD	p < 0,05
Men	43	79,47	8,852	0,712
Women	85	80,06	8,420	0,717

Note : *M*: mean, *SD*: standard deviation

Table 8. PTG T-test Results based on Gender

Table 8 shows the participants are dominant by women. However, there is no difference in PTG levels by gender. This is indicated by the mean value of the male survivor group ($\mu = 79.47$) with a significance level ($p = 0.712$; $p > 0.05$). The mean value of the female survivor group ($\mu = 80.06$) with a significance level ($p = 0.717$; $p > 0.05$). Therefore can be stated that gender does not play a role in the PTG of natural disaster survivors.

The result contradicts the previous studies that female PTG scores are higher than male PTG scores [17, 18, 19, 20, 9]. The results found are supported by the results of previous studies that there are no significant differences in PTG based on gender [22, 33]. Meta-analysis studies show that gender only has a small to moderate role in influencing the development of PTG even the moderating variables between gender and PTG are very few, resulting in various speculations that there are differences in PTG between men and women.

Therefore further research needs to be done further studies related to gender relations, the nature of the traumatic event, and age [35]. Rumination can be a moderator between gender and PTG because women tend to be more reflective than men [35]. We know beforehand the tendency to reflect in a constructive manner, such as increasing one's potential or appreciating the importance of social relationships, is a mechanism for achieving greater PTG [3].





Coping strategies can potentially be mediators in traumatic processing [35]. The PTG is growth result from actively struggling to deal with traumatic events [3]. Therefore, if women tend to use emotion focused-coping, they are more likely to.

It is in line with the statement that women tend to introspect when facing pressure, reflect, and seek support than men. So further research is needed to examine the cognitive processes that occur when men and women experience trauma with determining to cope and rumination strategies that play a role in gender differences in measuring PTG [21]. Gender differences are small to moderate in PTG, so future research will be better if measuring moderators or mediators of gender differences in PTG [35]. As PTG research progresses rapidly, it is better to understand how men and women view PTG differently.

CONCLUSION

Based on the study and after reviewing the overall results, the researchers conclude big five personalities, social support, and gender play a simultaneous role in post-traumatic growth (PTG). Personal characteristics that are willing to interact with others are more likely to get benefits from social support. Women's personalities who tend not to hesitate to express themselves to seek social supports

than men have roles in the development of PTG.

Extraversion has a positive role in the PTG of Central Sulawesi natural disaster survivors. Individuals who are active, like to mingle and love to explore, and always take the positive side of difficult or adverse situations can achieve PTG. In addition, individuals with extraversion can recognize new opportunities and become strong personal after experiencing severe stress and life crises.

Agreeableness has a positive role in the PTG of Central Sulawesi natural disaster survivors. Individuals who have high empathy will be better able to recognize new opportunities. These individuals can get closer to God, establish good relationships with others, and appreciate life more will become individuals who grow.

Conscientiousness has a positive role in PTG Central Sulawesi natural disaster survivors. Individuals who dare to face problems, are persistent in achieving goals, have consideration and regularity, are thorough and disciplined, will be better able to become strong individuals, always draw closer to God and appreciate life.

Emotional stability does not play a role in the PTG of Central Sulawesi natural disaster survivors. Low emotional stability or high neuroticism inhibits PTG. If individuals are full of doubts, blame themselves, and withdraw from others, it will become complicated to grow and be productive. It can also play a negative role





in wanting to be closer to God and in relationships with others.

Intellect/openness to experience does not play a role in PTG survivors of natural disasters in Central Sulawesi. Intellect/openness to experience will be more effective in influencing the development of PTG when under high stress, finding appropriate coping strategies, being open to experience, and being persistent in finding solutions to problems that arise. Social support does not play a role in the PTG of survivors of natural disasters in Central Sulawesi.

There is no significant difference between PTG of male and female survivors too. The majority of survivors of natural disasters in Central Sulawesi have a high level of PTG. The new opportunities aspect is dominant in PTG development. In addition, survivors tend to have conscientiousness, agreeableness, and extraversion personalities. The majority of survivor's social support comes from attachment, guidance, reliable alliances, and value assurance.

There are limitations in this study due to using the online method considering the Covid-19 conditions, it is difficult for researchers to collect data in the field directly. Researchers are unable to interact with survivors of natural disasters in Central Sulawesi too. The natural disaster survivors feel uncomfortable when recalling disaster events, therefore requiring an approach through direct interaction. For future researchers, it is

preferable to conduct research directly in the field to obtain qualitative data and minimize psychological responses to disaster survivors.

The role of emotional stability, intellect, social support, and gender on the development of PTG natural disaster survivors is also not comprehensively described in the study. Several hypotheses have not proved to have a significant role in PTG. Therefore, future researchers can use post-traumatic stress disorder (PTSD) or coping strategies as moderator and mediator variables to measure big five personalities, social support, and gender roles in natural disaster survivor's PTG. The next researcher can expand the research sample and conduct research using a mixed-method to obtain more comprehensive data.

Natural disaster survivors should always try to be individuals who have the personal characteristics of extraversion (mingling, being active, exploring, warm, and keeping emotions stable), agreeableness (sincere, trusting, humble, forgiving, and being a shelter for others), and conscientiousness (disciplined, obedient, organized, considerate and persistent in achieving goals) to be able to achieve PTG. For practitioners or psychologists who want to carry out psychological treatment for survivors of natural disasters, they can develop interventions that focus on recognizing personal characteristics and increasing personal abilities which include





extraversion, agreeableness, and conscientiousness. Interventions based on extraversion can focus on activities that can help to improve interpersonal skills, motivation to seize new opportunities, or in the form of coping strategies to maintain emotional stability. Interventions based on agreeableness can focus on activities that can help to increase empathy for the environment, while interventions based on conscientiousness can focus on activities that can improve self-discipline, planning, consideration, and motivation to move forward.

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