The Emergence of PTSS and PTG Following Hurricanes Maria and Michael

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Abstract

Natural disasters are distressing to those affected; however, they may also lead to positive developments within an individual. The presented study investigates survivors from Hurricanes Maria and Michael and the factors influencing posttraumatic stress symptoms (PTSS) and posttraumatic growth (PTG). Relations between intense factors, coping strategies, and character strengths and their impact on PTSS, PTG, or both are analyzed. The survivors that experienced negative emotions, implemented counteractive coping mechanisms, or had low optimism were more likely to report PTSS. On the other hand, PTG was associated with longer amount of passed time, younger age, positive emotions, and greater optimism. The results depict the strong positive correlations between both PTSS and PTG and their respective attributes following a traumatic event.

Introduction

- The level of intensity of hurricanes leaves a path of destruction costing many lives, homes, and communities leading to the development of posttraumatic stress symptoms (PTSS) and posttraumatic growth (PTG).
- PTSS includes having vivid flashbacks of the trauma, avoidance behaviors towards the places/situations relating to the event, more tense reactions to newly formed triggers, and declined mood filled with guilt, depression, and anxiety.
- PTG contains a positive connotation towards one's character after facing adversity as they begin to appreciate life and form more relations with others; however, this process does not contradict PTSS instead they work together as one faces difficulty.
- The study presented by Dr. Ai aims to examine factors that lead to the development of PTSS and PTG as both arise from an adverse experience. Different hazardous factors contribute to each PTSS and PTG in various ways along with environmental variables of a person's life.
- The findings of this study help to develop further studies; in addition to, guiding clinical services for those affected by similar situations of disaster.

Results

- Table 1 depicts a correlation between PTSS and PTG with an r-value equal to 0.23 and a p-value less than 0.001. The results in this table show positive correlates of PTSS and PTG as well as negative correlates of age and optimism in PTSS and age in PTG.
- Table 2 reveals all four steps as statistically significant in PTSS.
- Table 3 presents the statistical significance of all four steps in PTG.
- Ultimately, results portrayed a significant correlation of PTSS and PTG in individuals who experienced traumatic events such as Hurricanes Michael and Maria.

Conclusion

- Following traumatic situations PTSS and PTG coexist due to struggles and the likelihood of stress along with benefits from overcoming these adversities.
- Stress is a result of difficulty but positive growth will develop as well. Additionally, other variables may influence the negative, positive, or dual impact on the adjustment following posttraumatic events such as hurricanes.
- Two additional hurricane-related factors: stressors and time, played more profound roles. Different individuals may experience different types and amounts of stressors, further the more time one is faced with a traumatic event the more intense the PTSS and PTG may develop.

Methods

- Data was collected in 2019 between April and December in communities impacted by Hurricanes Michael and Maria through a one-wave Qualtrics survey (advertised via flyers and electronic notices). Survey respondents were given either $10 or $20 gift cards as a motive to participate.
- The one-wave Qualtrics surveys were sent to Florida communities in areas recovering from Hurricanes Michael and Maria, many questions were self-reported by the participants.
- Each statement was reported to a scale based on criteria for the factor. The data was summed and assessed for cause-and-effect relationships.
- The data collected was also statistically analyzed to calculate means, deviations, p and r-values to demonstrate correlations.

Acknowledgements

Table 1
Bivariate correlations ($N = 566$).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Gender																
2. Age	−.10*															
3. Race	.15***	−.25***														
4. Student status	−.07	.50***	−.13**													
5. Peritraumatic negative emotion	−.19***	−.08*	−.04	.03												
6. Peritraumatic positive emotion	−.20***	.05	−.10*	.02	.16***											
7. Hazard-related stressors	−.12**	−.07	.02	.18***	.33***	.05										
8. Past trauma	.08	.12**	.07	.07	.06	−.08	.14**									
9. Self-distraction	−.06	−.13**	.06	.01	.42***	.03	.25***	.15**								
10. Denial	.03	−.20***	.20***	.04	.31***	−.03	.20***	.03	.37***							
11. Substance abuse	.12**	−.19***	.20***	.01	.18***	−.14**	.10*	.08	.30***	.56***						
12. Behavioral disengagement	.09*	−.23***	.17***	.00	.31***	−.10*	.22***	.08	.40***	.71***	.60***					
13. Self-blame	.06	−.23***	.14**	−.06	.34***	−.11**	.21***	.16**	.44***	.51***	.50***	.65***				
14. Altruism	.07	.11*	.04	.09*	.08	.20***	.18***	.12**	.07	.10*	.07	.11**	.02			
15. Optimism	−.05	.25***	−.01	.11**	−.23***	.24***	−.03	−.07	−.22***	−.26***	−.27***	−.39***	−.42***	.19***		
16. PTSD	.01	−.17***	.10*	.06	.52***	−.03	.37***	.19***	.53***	.61***	.49***	.64***	.59***	.21***	−.36***	
17. PTG	−.04	−.15**	.13**	.04	.19***	.28***	.26***	.06	.30***	.25***	.14**	.14**	.10*	.18***	.18***	.23***

Note. *p < .05. **p < .01. ***p < .001.

Table 2
Final hierarchical regression model for PTSD.

		B	β	R^2	F-change[d]
Step 1	Gender[a]	.10	.00	.074	10.13****
	Age[b]	−.02	−.03		
	Race[b]	−.31	−.01		
	Student status	1.53	.05		
Step 2	Days since hurricane	−.01	−.11*	.398	45.02****
	Hurricane[c]	−4.32	−.11		
	Previous trauma	2.23	.08**		
	Peritraumatic positive emotions	−.06	−.02		
	Peritraumatic negative emotions	.71	.22***		
	Hazard-related stressors	.50	.10***		
Step 3	Coping: Self-distraction	1.02	.15***	.638	65.92****
	Coping: Denial	1.54	.21***		
	Coping: Substance use	.44	.06		
	Coping: Behavioral disengagement	1.24	.16***		
	Coping: Self-blame	1.57	.13***		
Step 4	Altruism	.12	.13***	.654	11.76****
	Optimism	−.19	−.09***		

Note.
*p < .10. **p < .05. ***p < .01. ****p < .001. All based on 1000 bootstrap samples.
[a] For the sake of parsimony in the model, Gender was treated as binary (Female = 0, Male = 1).
[b] For the sake of parsimony, Race was also treated as binary (White = 0, Non-White = 1).
[c] Hurricane was coded as Maria = 0, Michael = 1.
[d] Step 1 F-change df = 4, 508; Step 2 df = 6, 502; Step 3 df = 5, 497. Step 4 df = 2, 495.

Table 3
Final hierarchical multiple regression model for PTG.

		B	β	R^2	F-change[d]
Step 1	Gender[a]	−1.29	−.02	.052	6.92****
	Age[b]	−.25	−.14***		
	Race[b]	−2.48	−.04		
	Student status	1.53	.02		
Step 2	Days since hurricane	9.81	.32***	.234	19.97****
	Hurricane[c]	.06	.13		
	Previous trauma	3.73	.06		
	Peritraumatic positive emotions	1.53	.24****		
	Peritraumatic negative emotions	.24	.04		
	Hazard-related stressors	1.62	.16***		
Step 3	Coping: Self-distraction	3.14	.22***	.287	7.40****
	Coping: Denial	2.27	.15***		
	Coping: Substance use	.65	.04		
	Coping: Behavioral disengagement	−.71	.05		
	Coping: Self-blame	−1.55	−.06		
Step 4	Altruism	.05	.03	.318	11.21****
	Optimism	.85	.20***		

Note.
*p < .10. **p < .05. ***p < .01. ****p < .001. All based on 1000 bootstrap samples.
[a] For the sake of parsimony in the model, Gender was treated as binary (Female = 0, Male = 1).
[b] For the sake of parsimony, Race was also treated as binary (White = 0, Non-White = 1).
[c] Hurricane coded as Maria = 0, Michael = 1.
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