Posttraumatic growth, Anxiety, Depression of Stroke Survivors

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Abstract Objective Although some previous studies have suggested that posttraumatic growth (PTG) is comprised of several factors with different properties, few have examined both the association between PTG and anxiety, depression .This study aimed to investigate the status of anxiety, depression and posttraumatic growth among stroke patients, and to study the relationship between them. Method This cross-sectional study was performed with 200(190 was effective) stroke survivors at different months post stroke. Data analyzed included self-reporting questionnaire scores on the Posttraumatic Growth Inventory (PTGI), the Hospital Anxiety and Depression Scale(HADS), which is one of the most widely used scales for measuring the level of anxiety, depression.Correlations between scores on the PTGI and anxiety subscale, the PTGI and depression subscale, and they were established by calculating Pearson's correlation coefficients. Result The mean score of the anxiety subscale, depression subscale and PTGI were 6.32±4.39, 7.17±4.59, and 58.10±13.723. Anxiety and depressive symptoms in stroke patients were inversely correlated to PTGI, and the correlative coefficient were r=-0.196, P < 0.05, r = -0.286, P < 0.01. New possibility, personal strength, appreciation of life and spiritual change on the PTGI were correlated negatively with anxiety and depression symptoms. Relating to others had no significance correlated with anxiety. Conclusion The post-traumatic growth was common in patients with stroke, and anxiety, depression had a negative impacts on it. The nursing should assess the positive psychological changes, and guide patients to adjust the changes, thus the patients' rehabilitation could be promoted.

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1. Introduction

Stroke is a serious traumatic experience for patients. More than 70% of the survivors have a varying degrees of dysfunction(Liu et al, 2007), for example the paralysis, muscle weakness, loss of feeling, speech and language problems, memory problems and indirect social effects, which are often pervasive and indirect social effects, which are often pervasive and persistent. Accompanied by the dysfunction are various prominent psychosocial problems, such as anxiety, depression and so on. These negative emotion problems have seriously effects on the rehabilitation of patients and the improving of quality of life. The literature has tended to emphasize the negative impact of these effects(Yang, 2010; Guo 2010; Li, 2006; Wang, 2011). With the development of positive psychology these years, persons are realizing that traumatic event could also contribute to individual's positive changing and growth which is called posttraumatic growth(PTG). Posttraumatic growth were proposed by Tedeschi and Calhoun in 1996. They defined PTG as the individual's experience of significant positive change resulting from the struggle with a major life crisis(Tedeschi and Calhoun, 1996). Tedeschi and Calhoun hold that people facing life crises typically experience distressing emotions.

anxiety depression or specific fears are common negative emotions(Tedeschi and Calhoun, 2004). It is natural to assume that PTG, by definition, would show a negative correlation with anxiety and depression. In fact, recent research suggests that the stroke's psychology may be more mixed and studies from Ostir(2008) and Seale(2010) have confirmed that some correlates of PTG after stroke, and the existence of PTG can promote the rehabilitation of patients and the improving of quality of life. At the same time the depression and PTG anxiety, could exist simultaneously, and there are correlations between them(Gangstad et al, 2009). But we can't find one study about PTG after stroke in China.

The present study, to our best knowledge, is the first to examine the differential impacts of negative and positive effects following stroke in China. So the present study try to examine the samples of people with stroke in center China. The study had two main objectives. First, to explore whether the concept of post-traumatic growth is applicable to the situation of people with stroke in China. Secondly, to explore the relationship between post-traumatic growth, depression and anxiety. Thus the nurse can provide psychological care and support for stroke patients overall.

2. Material and Methods

2.1 Participants and procedure

The study received ethical approval from Ethics Committee of Zhengzhou University. Stroke survivors were recruited from the department of neurology in hospital which is in the Zhengzhou city of middle China. The inclusion and exclusion criteria were as follows. Stroke survivors who attended the department of neurology and were diagnosed of stroke were invited by the researchers to take part in the study. Survivors who were unable to complete the questionnaire because of language dysfunction or cognitive impairment resulting from stroke were excluded. Before the starting of the investigation, the researchers would explain the purpose of the study to the survivors in detail. If we get the consent from the participants, we would gave them a study questionnaire to complete at the department. The researcher would read and explain the problems one by one to the participant who can't complete the questionnaire by self because of reading disability or physical dysfunction. A total of 200 questionnaires were given out, and 190 were retracted . The effective recovery ratio was 95%.

2.2 Measures

The assessments included the following: (a) general socio-demographics, and stroke-related information; (b)the Hospital Anxiety and Depression Scale (HADS); (c)the Posttraumatic Growth Inventory (PTGI).

The HADS(Zigmond and Snaith,1983) is a self-reports scale, and has good reliability and validity. So it is widely used to discover patient's anxiety and depression emotion in general hospital. HADS has 14item questionnaire and two subscales to measure anxiety and depression. Each subscale contains seven items scored on 4-point Likert-type scales ranging from 0 to 3 to indicate degree of psychological distress. The subscales scored 0-7 means non-performance; 8-10 points are suspicious, 11-21 are reaction. Reliability and validity of the Chinese version of the HADS have been verified.

The PTGI(Tedeschi and Calhoun, 1996) which is one of the most widely used scales for measuring the degree of change experienced in the aftermath of a traumatic event. It is a 21-item self-rating scale and is comprised of five factors: relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. The degree of PTG for each item is rated on a 6-point response scales ranging from 0 (I did not experience this change to a very great degree as a result of my crisis), with high scores indicating positive growth. Reliability and validity of the Chinese version of the PTGI have been verified(Wang et al, 2011). The scale was found to have satisfactory internal reliability (Cronbach's α 0.819) in the present study.

2.3 Statistical Analyses

All data analyses were performed using SPSS statistical software version 13.0 for Windows. Demographic and stroke-related information were analyzed by descriptive statistical respectively. The correlations between the scores on the anxiety, depression and the PTGI were established by calculating Pearson's correlation coefficients because of the anxiety, depression and the PTGI score distributions. All statistical analyses used two-tailed tests. Statistical significance was established at P<0.05.

$X \pm s$			Score Level (n,%)			
			0-7	8-10		1-21
Anxiety	6.32±4.39		117(61.60)	38(20.00) 35((18.40)
Depression	7.17±4.59		100(52.60)	38(20.00) 52((27.40)
Table 2 Correlations between variables and descriptive values of the variable						
	PTGI total	Relating to others	New possibilities	Personal strength	Appreciation of life	Spiritual Change
Anxiety	-0.196	-0.072*	-0.238	-0.145	-0.201	-0.169
Depression	-0.286	-0.152	-0.307	-0.246	-0.286	-0.214
X	58.10	9.11	11.12	8.06	17.32	12.09
SD	13.723	2.279	3.233	2.463	4.520	3.204
Range	17-87	4-15	3-20	2-15	5-29	3-20

Table1 The score of anxiety and depression ($\overline{X} \pm s$)

*Relating to others had no correlated, P>0.05

3. Results

3.1 Sample Characteristics

The total number of participants in the present study was 190 (118 men, 72 women). Participants ranged in age from 24 to 87 years(M=58.57, SD=12.051). 171 participants were married, and 19 were single or divorced. 114 participants' s course of disease was less than 6 months, and 76 was more than six months. In terms of education level, 35.26% (N = 67) were literate (be able to only write and read) and primary school graduate, 25.26% (N = 48) were secondary school graduate, 19.47%(N = 37) were high school graduate, and 20.00% (N = 38)were university graduate.

3.2 Descriptive Statistics and Correlations Analyses between Variables

In addition to the correlation between PTG scores and the other variables, descriptive statistics of all variables included in the present study are presented in Table 1 and 2 respectively. Median score of anxiety, depression and PTGI were 6.32±4.39, 7.17±4.59, and 58.10±13.723 (range 17-87) respectively. As it can be seen from the table 2, PTGI was negatively related with anxiety (r=-0.196, P < 0.01) and depression (r=-0.286, P<0.01). New possibility, personal strength. appreciation of life and spiritual change were correlated negatively with anxiety and depression symptoms. Relating to others had no significance correlated with anxiety.

4. Discussions

4.1 Stroke survivors with anxiety, depression emotions

Stroke is a significant traumatic event to persons, and the damage of the brain also have some impacts on the patient's mental emotion. The existence of negative emotion problems like anxiety and depression have serious impacts on the rehabilitation of stroke survivors. In the present survey, some survivors had anxiety and depression emotions. Suspicious tendencies and manifestations of anxiety and depression account for 20.00% / 18.40%, 20.00% / 27.40% (Table 1) respectively. The results were slightly lower than reported in the literature(Han and Cui, 2011) which were 72.22% and 60.42% in China stroke survivors. The different of the results may be related to many reasons. First the participants were come from different city, and the investigation methods were different for the two studies. In addition, the participants were mostly in the recovery period of the disease when the data collecting. So the serious condition and critical moment had passed. Patients could get a certain degree of psychological comfort from the recovery of the disease. Therefore, the incidence of anxiety and depression were lower compared to the acute stroke.

4.2 After stroke the phenomenon of post-traumatic growth appeared

This study examined the predictors of posttraumatic growth among survivors after stroke in present study. The previous study(Helgeson et al, 2006)had show that not only the external traumatic events can engender PTG, the occurrence of serious diseases can also engender PTG. The mean score of the PTGI was 58.10±13.723 (table 2) in present study which was considered fairly higher compared with previous literature, the mean score of which was 50.93±19.92(Gangstad et al, 2009). The differences may be related to many factors. The average age of the participants (58.57 ± 12.051) are old in present study which is significantly lower than previous literature reports (71.67 ± 10.64) (Gangstad et al, 2009). The younger groups were able to experience more growth after traumatic events occurs in cancer survivors (Bellizzi, 2004). This may be related to the young patients need more to adapt the society, so they experience more PTG which is related to selfgenerated. Second, the Duration of stroke patients in this group are mostly in the 6 months or less, which is significantly lower than the foreign average level of 32.03 months(Gangstad et al, 2009). The finding is consistent with the findings in report of Milam(Milam, 2004)that the patients' PTG had a negative correlation with the duration of disease. In the early stages of the disease, health's recovery may promote the occurrence of PTG. But the patients gradually adapt to the existing of physical condition with time goes on and the recovery of body functions into the chronic stage, so the PTG change is no longer significantly. Third, the huge differences in socio-cultural backgrounds between different countries also affected the level of PTG in the stroke survivors to some extent.

4.3 Anxiety, depression were negatively correlated with PTG

The survey results showed that the total PTGI score of stroke patients was negatively correlated with anxiety and depression(Table 2). Relating to others had no correlated with and anxiety depression, anxiety and depression were negative correlated with other dimension at the different levels. Compared to the other dimensions, anxiety and depression had a relatively high correlation with the dimension new possibilities(Table 2). Anxiety and depression are negative emotions which can lead to unpleasant and painful state for patients. Although the negative emotions have no threat to the disease itself, a series of body discomfort will be accompanied. The discomfort increased the psychological burden of patients and

hindered the rehabilitation of patients seriously. The rehabilitation of the patient's body had a promoting effect to person's PTG, and previous study also showed that positive emotions contribute to returning social life of patients(Gillen, 2005). The results of present study that the negative correlations between PTG and anxiety and depression were consistent with the results of Gangstad(2009)and Helgeson(2006). The result also indicates that the positive mental state can promote the development of PTG to a certain extent. The correlation coefficient between the variables were lower in this survey. So a number of limitations that should be noted. First, the sample size was relatively small. So it is important for future work to expand the sample size. Second, the participants who can't understand the scale well enough maybe too old, so the results have a lower validity.

In summary, anxiety and depression were negatively correlated with stroke PTG in stroke patients , and they can co-exist with the PTG. The results prompted the nurses who should not pay only attention to the negative psychology but also the active and positive changes about stroke survivors at the same time. In clinical work we can take individualized psychological support measures to patients, so that patients could recovery earlier. It takes us a new theoretical framework for the implementation of nursing interventions. From this point we could attempt to reduce the negative psychological emotional and improve the level of PTG.

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References

- 1. Liu M, Wu B, Wang WZ, et al. Stroke in China: epidemiology, prevention, and management Strategies. Lancet Neurol 2007;6(5):456-64.
- 2. Yang Ling-li, Zhang Zhi-jun, Sun Ding-ming. Incidence and its risk factors of post-stroke depression in cerebral stroke patients at acute stage. J Clin Neuro 2010;23(3):185-187.
- 3. Guo RY, Li JZ, Zhao LX, et al.Correlation between Depressive Disorder with Dementia after

Ischemic Stroke in Elderly Patients. Chinese Journal of Rehabilitation 2010;25,(5): 334-336.

- 4. Li X, Zhong JB.The Influence on ADL for Stroke Patient with Neural Function Disorder.Chinese Journal of Practical Nervous Diseases 2006;9(6):103.
- 5. Wang PX, Song XL,Wang JJ. Study on Negative Emotion and Relative Factors in Patient with Stroke.Chinese General Practical 2011;4(4B): 1170-1172.
- 6. Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: Measuring the Positive Legacy of trauma [J]. Journal of Traumatic Stress 1996; 9 (3):455-471.
- Tedeschi RG, Calhoun LG. Posttraumatic growth: Conceptual foundations and empirical evidence. Psychological Inquiry 2004; 15(1):1-18.
- 8. Ostir GV, Berges IM, Ottenbacher ME, et al. Associations between positive emotion and recovery of functional status following stroke. Psychosomatic Medicine 2008;70(4):404-409.
- 9. Seale GS, Berges IM, Ottenbacher KJ et al. Change in positive emotion and recovery of functional status following stroke. Rehabilitation Psychology 2010;55(1):33-39.
- 10. Gangstad B, Norman P, Barton J. Cognitive processing and posttraumatic growth after stroke[J] Rehabilitation Psychology 2009;54(1):69-75.
- 11. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983;67(6):361-370.
- 12. Wang J, Chen Y, Wang YB, et al. Revision of the Posttraumatic Growth Inventory and testing its reliability and validity. Journal of Nursing Science 2011;26(14):26-28.
- 13. Han L, Mei CH. Analysis of anxiety and depression of the stroke patients in the department of neurology and nursing intervention. Journal of Qi Lu Nursing 2011;17(28):12-13.
- Helgeson VS, Reynolds KA, Tomich PL. A metaanalytic review of benefit finding and growth. Journal of Consulting and Clinical Psychology 2006;74:797-816.
- 15. Bellizzi KM. Expression of generativity and posttraumatic growth in adult cancer survivors.International Journal of Aging & Human Development 2004;58(4):267-287.
- 16. Milam JE. Post-traumatic growth among HIV/AIDS patients. J Appl Soc Psychol 2004 34:2353-2376.
- 17. Gillen G. Positive consequences of surviving a stroke. Am J Occup Ther 2005;59 (3): 346-350.

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