

Spirituality, gratitude, hope and post-traumatic growth among the survivors of the 2010 eruption of Mount Merapi in Java, Indonesia

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Abstract

The province of Yogyakarta, located in the island of Java, is one of the areas in Indonesia which is vulnerable to natural disasters. This study focuses on Post Traumatic Growth (PTG) referring to the positive aspects of people's experience, specifically during the course of the Mount Merapi eruption disaster in 2010. Some literatures suggest that aside from affecting negative emotional experiences, traumatic experiences also provide personal growth, such as positive changes in behaviour, better relationships with others, a more positive outlook and a greater appreciation of life. The purpose of this study was to understand the role of spirituality, gratitude and hope in predicting PTG. The participants of this study were 60 survivors who were living in temporary houses. There were four instruments administered in the study: (1) Post Trauma Growth Scale, (2) Spirituality Scale, (3) Gratitude Scale, (4) Hope scale. Following the administration of these instruments individually, the participants were also interviewed for qualitative data collection. The results of the multiple regression analysis showed that spirituality was the only significant predictor of PTG ($F = 11,671$, $p < .01$). The adjusted R square determinant coefficient of 0.107 indicated that the effective contribution of spirituality to PTG is 10.7%. The qualitative data indicated that spirituality—through prayer, belief in God, wisdom, compassion, and patience—transformed

distress experiences into a more positive impetus towards growth.

Keywords: *Post-Traumatic Stress Disorder, Post-Traumatic Growth, positive psychology, Yogyakarta-Indonesia*

Indonesia consists of thousands of islands and is located in a geologically unstable area influenced by the collision of three huge tectonic plates: Eurasian, India-Australian and Pacific plates. This makes Indonesia home to numerous active volcanoes and the effects of frequent tectonic earthquakes. In addition, the country lies between two oceans, Pacific and Indian, and between two continents, Australian and Asian.

One of the most regular natural disasters occurring in Indonesia is volcanic eruption. On October-November 2010 the Mt Merapi which is situated in Yogyakarta and Central Java erupted. The eruption was considered as one of the most devastating since the year 1870. Thirty two villages, with a total population of more than 70,000 people, had to be evacuated. According to official statistical data summarised in Putro (2012), the death toll reached 242 people in the Yogyakarta Special Province and 97 in Central Java. In contrast, the Sleman District Health Office stated that the death toll reached 277 people.

According to Putro (2012), The Indonesian National Board for Disaster Management (BNPB) also released statistics for the total number of displaced people by affected areas: in Central Java there were 224,250 displaced people and in Yogyakarta Special Region there were 54,153 people. BNPB recorded there were 2636 houses damaged, including 156 houses with major damage and 632 with minor damage. The total number of damaged houses in Sleman, Yogyakarta Special Region was 3424. In the affected areas of Central Java, there were a total of 3705 houses which were mildly to severely damaged .

This research focused on the psychological aspects of disaster, especially Post-Traumatic Stress Disorder (PTSD) experienced by the survivors. PTSD is a condition caused by emotional distress that occurs after a person was exposed to a traumatic event and results in feelings of total helplessness or fear (Durand

& Barlow, 2003). However, recent studies have observed the positive aspects of disaster. Some of these studies have investigated a positive aspect of trauma, referred to as Post-Traumatic Growth (PTG). The current study was aimed to examine several factors that influenced the Post-Traumatic Growth in the survivors of the Mount Merapi eruption, namely their spirituality, gratitude and hope. Our preliminary study found that survivors varied in how they responded to disasters. Many of them were distressed following the eruption. Several months later, they became quite different people in terms of their religiosity, social relationships, and views on the future.

Post-traumatic growth refers to a positive psychological change as a result of the struggle of an individual in the face of traumatic events in one life (Taku, Calhoun, Tedeschi, Gil-Rivas, Kilmer, & Cann, 2007). Although the term Post-traumatic Growth is still fairly new, the idea has actually existed for a long time. Many other terms have been used to describe post-traumatic growth, such as: positive psychological changes (Yalom & Lieberman, 1991); perceived benefits or construing benefits (Calhoun & Tedeschi, 1991; McMillen, Zuravin, & Rideout, 1995); stress-related growth (Park, Cohen, & Murch, 1996); positive by-products (McMillen, Howard, Nower & Chung, 2001); discovery of meaning (Bower, Kemeny, Taylor, & Fahey, 1998); and positive emotions (Folkman & Moskowitz, 2000).

The literature mentioned above has suggested that traumatic experience may not necessarily lead to negative impacts on a person. Traumatic events may assist a person to learn things and develop new competencies which he or she previously did not have. The events may also encourage a person to have a better individual and social life, ultimately bringing him/her to grow and change in a positive way to become a better person. Thus, PTG is a subjective perception and evaluation of a particular traumatic event. The PTG construct, however, has been a subject of debate. Hobfoll, Hall, Canetti-Nisim, Galea, Johnson, and Palmieri (2007) reviewed a number of literatures which suggested that there were no clear evidence that PTG had any positive or negative impact on psychological well-being. Zoellner and Maercker (2006) found that there were no consistent effects on the relationship between PTG and psychological well-being following trauma experiences. From a meta-analysis of 77 cross-sectional studies, Helgeson, Reynolds and Tomich (2006) found that PTG related to lower depression, but at the same time it also correlated with negative effects

such as greater avoidance and intrusive thoughts which was often found in PTSD symptoms. Despite this criticism, the current study focuses primarily on the factors influencing PTG. More importantly, it provides a contextual understanding of PTG in a Javanese culture.

Urbayatun (2012) reviewed literature addressing some of the factors that influenced post-traumatic growth such as: level of stressors; social support; coping through deep contemplation to understand events; coping by way of acceptance; as well as spiritual / religious coping or through beliefs (beliefs). Besides factors of age and gender, post-traumatic growth was also correlated with a variable of wisdom. Other literature found that spirituality (Kimhi, Eshel, Zysberg & Hantman, 2010), gratitude (Vernon, Dillon & Steiner, 2009) and hope (Jenmori, 2006) served as important factors affecting PTG. In a study conducted by Kimhi et al (2010), it was found that one can achieve post-traumatic growth by looking for something that can be used as a means to endure difficult times.

Some studies have also shown that spirituality and religiosity play an important role in the efforts of confronting a painful (traumatic) event and dealing with physical illness (Koenig, 1998). Meanwhile Bert (2011) suggested that religious and spiritual beliefs were very valuable for people wanting to make significant impacts in their own lives. Spirituality and religion can become the basis of one's philosophy of life and the strength they need to cope and deal with environmental pressures, as well as provide them with guidance and assistance in their efforts to comprehend each and every painful and traumatic event (Koenig, 1998; Bert, 2011). Therefore, religion and spirituality can help an individual to live on and go through life. Gall, Kristjansson, Charbonneau, and Florack (2009) concluded that spirituality and religiosity gave an individual guidance on how to behave and assess a situation, what action should be taken, as well as decide what coping strategy will be used to address the situation.

Gratitude was another variable pertinent to post-traumatic growth, considering its role in increasing life satisfaction and well-being. Gratitude has been able to encourage positive actions which allowed people to strengthen their personal character. Wood, Joseph and Linley (2007) argued that gratitude facilitated positive coping and reduced stress and therefore strengthened a person's personality. Gratitude not only can make people feel happy at the present time but also provides people with happiness in later periods

of life (Emmons & McCullough, 2003). Gratitude was instrumental in reducing any negative aspects within oneself (Nelson, 2009). McCullough, Kimeldorf and Cohen (2002) found that people who were grateful tend to be more optimistic, have hope and happiness, and have low levels of depression and anxiety. Gratitude also negatively correlated with narcissistic behaviour and anger (McCullough et al., 2002).

In regard to trauma, gratitude is beneficial in the process of growth following any experience of crisis or trauma. With gratitude, a person will tend to have a high pro-social behaviour and will tend to create good relationships with others, which in turn will increase their appreciation of life as well as the people around them (Nelson, 2009). People with forgiveness and gratefulness tend to have higher subjectivity than those without (Toussaint & Friedman, 2009). According to Vernon, et al, (2009) people who experience traumatic events and then develop gratitude, will later show no PTSD symptoms. Some studies suggested that gratitude was positively related to life satisfaction, well-being and social functioning (Wood, Joseph & Maltby, 2008), and the perception of social support (Wood, Maltby, Gillett, Linley, & Joseph, 2008). In addition, people who have high tendencies of gratefulness would experience low levels of stress and depression (Wood, Maltby & Gillett et al., 2008).

In addition to gratitude, hope was another important factor in the process of post-traumatic growth. According to Jenmorri (2006), hope has often been associated with health and growth. According to some theories, hope was very important in the changing process of an individual and their collective life. Hope comes at the same time with the advent of suffering (Pilkington, 1999). Hope emerges in a suffering condition which facilitates individuals to interpret the condition in a positive way (Frankl, 1959). Snyder, Ilardi, Cheavens, Michael, Yamhure and Sympson (2000) stated that hope consists of two major interrelated components: agency and pathway. Agency relates to the ability to find alternatives to achieve a particular goal. Pathway describes how individuals are able to develop a rational method to achieve the goal.

Although people usually focus on a particular method but they should anticipate the ineffectiveness of the main method and find the possibility to use a different method. This is so that people can still maintain hopeful thinking. A number of studies found that individuals with high hope usually produce more alternative methods when

he or she are facing obstacles in achieving goals (Irving, Snyder, & Crowson, 1998). Snyder, Harris, Anderson, Holleran, Irving, and Sigman et al. (1991) suggested that an individual must have a consistent motivation to keep moving forward, following a particular method to achieve the stated goals.

Self-determination and the sense of purpose to keep moving toward the goal epitomises agency. An individual who has agency often expressed self-affirmation statements such as "I'm sure I could" and "I can achieve this" (Irving, et al., 1998). When experiencing barriers to achieve goals, individuals who have agency tend to be motivated to find alternative methods to achieve it (Irving et al., 1998). From the literature outlined above, it can be hypothesized that spirituality, gratitude and hope are good predictors for post-traumatic growth among survivors of the Merapi eruptions.

Method

The current study was situated in the Sleman district of Yogyakarta, Special province of Indonesia. Living in what is known as the centre of Javanese culture, the people of Yogyakarta are mostly Moslems but also practice Javanese traditions derived from Hindu and Buddhist traditions. Aside from practising Islamic daily prayers, they still believe in certain spirits which influence human life. The most well-known Javanese values often used as a coping strategy in dealing with hardship include *sabar* (patience) *syukur* (gratitude) and *nrimo* (acceptance). These cultural values are syncretic of Islamic and Hindu traditions.

The current study was conducted at temporary housing for Merapi disaster survivors located in the village of Glagaharjo, Cangkringan Sub-District, Sleman District, Special Province of Yogyakarta. The village of the survivors which was located around five kilometres from the temporary housing was destroyed during the Merapi eruption in November 2010. The survivors lost some of their family members, houses, cattle and farms. They were then living in scattered shelters for several months before moving to the temporary housing, waiting for more permanent houses to be built by the local government. They had lived in the temporary housing for about 8 months when the research was conducted. The total number of the participants was 90 Moslem people. All were married with ages ranging from 18 to 55 years old. Educational backgrounds were quite diverse with most participants mostly attending a high school education. Most of the participants were farmers

or workers at the sand collection sites. Only few were government officials, teachers and traders.

Members of the research team visited the participants' houses and administered four instruments to each individual: Post Traumatic Growth (PTG) Scale, Spirituality Scale, Gratitude Scale and Hope Scale. The PTG Scale used in this study follows the structure developed by Urbayatun (2012) based on the Tedeschi concept of PTG which consists of five indicators, namely: relationships with others; emergence of new opportunities; stronger personality; increased spirituality and religiosity; and increased respect for life (Tedeschi, 1999). The PTG scale consists of 20 items with a Cronbach's alpha reliability coefficient of 0.877. The Spirituality Scale was an adaptation of the ASP Spirituality Scale (Bussing, Ostermann, & Matthiessen, 2007), which comprises of 25 items with a Cronbach's alpha reliability coefficient of 0.908. The Gratitude scale follows the modified version developed by Vanesa and Uyun (2008), based on the concept of Al Jauziyah, which consists of 24 items with a Cronbach's alpha reliability coefficient of 0.881. The Hope Scale was an adaptation of the scale developed by Riyono (2010), which consists of 10 items with an alpha reliability coefficient of 0.813.

Following the administration of the research instruments, the participants were also interviewed for qualitative data collection, using open-ended interviews. The questions revolved around their experiences during the eruptions, their understanding of the disaster and how they coped with it.

Results

Quantitative data analysis used a simple regression analysis to see the influence of three predictors; spirituality, gratitude and hope to post-traumatic growth as the criterion. The results of the analysis are presented in table 1 and table 2.

Table 1 and Table 2 show that of the three predictors tested in this study, only spirituality influenced the criterion of PTG, with an F value of 11.671 ($p < 0.01$). The coefficient of determination adjusted R-square of 0.107 indicates that the effective contribution of spirituality to the criterion was 10.7%. This showed that 89.3% of the variable PTG was influenced by other variables. Based on the calculations presented in the table above, the regression equation model of Post Traumatic Growth could be obtained as follows:

$$Y = 26.429 + 0.402 (X1).$$

Table 1
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.342a	.117	.107	6.89683	.117	11.671	1	88	.001
2	.374b	.140	.120	6.84744	.022	2.274	1	87	.135
3	.384c	.147	.118	6.85622	.008	.777	1	86	.380

- a. Predictors: (Constant), Spirituality
- b. Predictors: (Constant), Spirituality, Gratitude
- c. Predictors: (Constant), Spirituality, Gratitude, Hope

Table 2
Model coefficients for PTG as a dependent variable

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	26.429	6.650		3.974	.000
	Spirituality	.402	.118	.342	3.416	.001
2	(Constant)	14.214	10.450		1.360	.177
	Spirituality	.288	.139	.245	2.071	.041
	Gratitude	.251	.166	.179	1.508	.135
3	(Constant)	8.656	12.216		.709	.481
	Spirituality	.254	.145	.216	1.754	.083
	Gratitude	.260	.167	.185	1.556	.123
	Hope	.181	.206	.092	.882	.380

The qualitative data gave a more detailed description of the five indicators of PTG experienced by the survivors, namely relationships with others, emergence of new opportunities, stronger personality, increased spirituality and religiosity and increased respect for life. Although the changes experienced by each of the participants were at different levels, positive changes were evident.

During the post eruption phase, survivors experienced a change in the way they relate to their family and neighbours. They became more respectful to their spouse, more open, and willing to forgive when making any mistakes. The feeling of togetherness and harmony (*rukun*) with their neighbours was strengthened. They learned how to respect each other and to have mutual

compassion. This indicated a better quality relationship and harmonious living (*rukun*) according to Javanese cultural values. One participant stated:

Previously people lived in areas which were quite distant from one another, but now we live close to each other. This makes our relationship closer. We live a harmonious (rukun) life in this temporary housing.

The second change related to how they saw new chances, opportunities and ideas after the eruption. This included acquiring a new competence or improving existing skills. Most participants in this study outlined how the disaster forced them to think how to deal with the difficult situation. They stated that they generated a lot of new ideas which were previously unimagined. NG, one of the participants, narrated:

I am now more creative... I have a lot of ideas. I have a plan to cultivate most of the land affected by the eruption. It will become a pilot project.

The next change perceived by participants was related to a stronger sense of self. They believed that they were able to work harder, be optimistic, have a sense of patience and to be able to eliminate hopelessness. For example, participant GN disclosed that the eruption changed his character from a lazy person to a hard worker.

The last change experienced by the participants was related with their religious and spiritual life. The change included a stronger belief in God and the increased performance of religious rituals. WG, one participant, used the term inner life (*batiniah*) to describe the change in his spiritual life. He said that although his life had not returned to normal, he felt that his inner life was peaceful because he believed that everything was from God.

The participants' performance of religious ritual was indicated by the fact that they were able to consistently perform their daily prayers. Some participants always performed a congregational prayer in the mosque. Participant WG narrated:

Compared to before the eruption, I am now consistently going to the mosque to perform the daily prayers five times a day. I also often read the Quran right now, trying to remember some short verses.

For participant GN, the Merapi eruption had changed his religious life dramatically. He disclosed that before the eruption, he had ignored his Islamic religion. Only sometimes he performed the daily prayers. He was mostly focused on the worldly matters and sometimes

consumed alcohol, which is forbidden according to the Islamic religion. He stated that, "After the eruption my religious life changed one hundred and eighty degrees." He also stated that, "I am grateful to God, because of the eruption I am able to return to the path of God. I have a strong belief in God."

Although the degree of change is different from one participant to the other, the change of religious life was observable. According to an anecdotal account from one of the religious leaders, the number of people going to the mosque to perform congregational prayers was increasing. People living in the temporary shelters who had never performed daily prayers before eruption were very active after the eruption. They also enthusiastically attended weekly religious gatherings to listen to religious talks.

The qualitative data suggested that spirituality also played an essential resource in coping with the disaster. Spirituality provided a powerful energy to deal with the distress and get back to a normal life. Participant WG clearly stated that it was because of the power from God that made him able to endure this situation: "There is no power except the power of God... Everything is from God." Most of the people who were interviewed believed that life is from God. Human beings must accept whatever occurs in this world. They believe that the disaster was part of the power of God. They perceived that the Merapi eruption was a warning and a test from God. It must be accepted with patience and gratitude. They were grateful especially because they were still alive, although they had no more belongings and many had lost family members. They became respectful to whatever they had at that time and this motivated them to have a strongly spiritual approach to life.

The power of spirituality also provided the participants with feelings of security and protection. NG, a participant who became the last person to have left an area heavily affected by volcanic ashes and mud, stated that if it was not by the protection from God he could have died. When he recollected this experience, his belief in God became stronger.

Discussion

After experiencing disaster or trauma, an individual can feel sad and can often feel hopeless. However, it is also not uncommon that, following the coping process, an individual will have an optimistic attitude to continue their life. This will bring a positive change to an individual.

Changes that may occur include the emergence of optimism, respect for life, better attitudes toward others and also a better spiritual life (Linley & Joseph, 2004).

This study showed that of the three variables that supposedly predicted any post-traumatic growth, it was only spirituality which had a significant role. It is consistent with the idea suggested by some literatures that spirituality is an important variable which is much needed by those who are experiencing a painful event as a source of strength to revive and live life as usual or to live a better life than before (Peres, Almeida, Nasello, & Koenig, 2007; Koenig, 1998; Bert, 2011). The role of spirituality can be understood in the context of spiritual development. Subandi (2009) found that a negative life event or suffering constitutes a significant event that results in a marked change in the participants' lives. For the participants, experiences of suffering became meaningful enough to allow them to assess their past lives and at the same time reorganize their present lives. Spirituality has provided a powerful resource for participants to interpret suffering as an instrument for reviewing the way of life.

Early literature of the psychology of religion discussed the important role of suffering in enhancing religious growth. Clark (1958) stated that, although most psychologists of religion tend to neglect the experience of suffering as the subject of study, all major religions have taken human suffering into account. For the Biblical writers, for example, suffering was connected with growth because "in many places and in many ways the praise of suffering is sung" (Clark, 1958, p.171). According to Buddhist tradition, all existence is suffering: "...birth is suffering; old age is suffering; illness is suffering; death is suffering; grief, lamentation, pain, affliction and despair are suffering..." (Schumann, 1973, p. 29). Among the Shi'a Moslems, the tradition of injuring their own body as a form of physical suffering becomes an important religious ritual to commemorate the martyrdom of Hasan, the grandson of the Prophet Muhammad.

There are also some evidences in the history of religions of the high proportion of saints and prophets who experienced suffering and crises before they attained a higher level of mystical and spiritual life. In the Buddhist tradition, it is stated that before achieving enlightenment and becoming a Buddha, Siddhartha Gautama experienced suffering due to an existential crisis (Schumann, 1973). In the Christian tradition, the experience of Saul of Tarsus becoming Paul the Apostle was also precipitated by the experience of suffering

(Thouless, 1958). In the Islamic tradition, one example of the relationship between suffering and spiritual life is the event of the Prophet Muhammad's ascension (*Mi'raj*) to the Divine Throne, which occurred shortly after the death of his wife and his uncle (Nasr, 1989).

From the perspective of spiritual and religious development, the qualitative data of this study suggested that most participants have had a middling level of religiosity. Although they were Moslem, they did not practice their religion fully. Some participants had even ignored their religion and conducted unlawful behaviour such as drinking alcohol. The Merapi eruption was an important turning point for them. During the eruption they experienced traumatic experiences such as losing their family members, houses and lands. They understood the disaster as a reminder or warning from God and at the same time they also believed that it was the power of God who saved them from the disaster. After experiencing a difficult life in the shelter, then in a temporary housing, participants came to realize that they had no feeling of gratitude about the grace of God. Therefore, it was important for them to return to God and practice their religion correctly. This type of religious coping was very common among the people in Yogyakarta in the face of hardship.

In a study among earthquake survivors of the 2006 earthquake in Bantul, Yogyakarta, Urbayatun (2011) found that most of the survivors employed Islamic religious coping by practicing *dhikr* (remembrance of God), *sholat* (daily prayer), *sabar* (patient) *tawakkal* (surrender) and *syukur* (gratitude). Zaumseil, Scharz, von Vacano, Sullivan and Prawitasari Hadiyono (2014) criticized the concept of religious coping such as what has been found by Urbayatun (2011) as being "...artificially separated from the local and sociocultural context..." (p. 95). They suggested a more cultural, contextual and historical approach to religious coping. Despite this criticism, studies into coping strategies following the 2006 Bantul, Yogyakarta earthquake (see Zaumseil et al. 2014) had already identified a number of coping strategies such as: *nrimo* (acceptance); *pasrah* (surrender); *syukur* (gratitude); *usaha* (effort); and *sabar* (patience). Similarly, participants in this study also employed many different religious coping strategies, such as exhibiting the attitude of *sabar* (patience), *syukur* (gratitude), *nrimo* (acceptance) and performing religious rituals: daily prayer; congregational prayer; reading the Quran; and attending religious talks. This indicates that Javanese people use similar religious coping strategies,

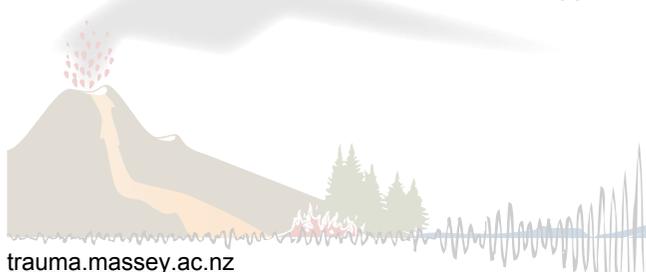
not only in dealing with disasters but also in dealing with life's hardship in general.

The results of this study indicated that the variables of gratitude and hope did not have a significant effect on post-traumatic growth when analyzed together with spirituality, but when analyzed separately, gratitude had a significant correlation ($r = 0.312, p < 0.01$). This was probably due to the high correlation between gratitude and spirituality ($r = 0.543, p < 0.01$). It can be concluded that the concept of gratitude is included in the concept of spirituality. In other words, the concept of spirituality involves the concept of gratitude. On the other hand, there was no significant correlation between hope and post-traumatic growth ($r = 0.172, p > 0.05$). In sum, the effective contribution of spirituality to post trauma growth can be considered small, at only 10.7% while 89.3% was predicted from many other variables.

The weakness of this study was that it focused on variables of spirituality, gratitude and hope, which originated from an individual. This study did not look at the wider social perspective. There would have been a communal life that had significant influences on those going through post-traumatic growth. Social support was not included in this study as an influencing variable. It is very common that during the time of disaster, survivors receive assistance from various parties in the forms of physical, financial, social and psychological aids. Such aids can help survivors to be able to bounce back and live a normal life. Prati and Pietrantonio (2009) conducted a meta-analysis study on factors that influence the emergence of PTG in survivors of traumatic experiences. Of the 103 studies that were analyzed, they showed that the variables of religious coping and positive thinking provided the greatest effect on post-traumatic growth. Meanwhile, social support, support-seeking coping, spirituality and optimism had a moderate effect. Acceptance had the smallest role in predicting post-traumatic growth. In line with Prati and Pietrantonio (2009), Urbayatun (2012) found PTG in the survivors of earthquake in Bantul, which was located in the Southern area of Yogyakarta, was heavily influenced by social support. In this study, social support served as a moderator between stress caused by disaster-coping strategy and PTG. It is recommended that any similar research in the future should include not only personal factors but also social factors such as social support.

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