ENVIRONMENTAL AND INDIVIDUAL RESOURCES, PERCEPTION OF THE EVENT, COGNITIVE PROCESSING AND COPING AS FACTORS LEADING TO POSTTRAUMATIC GROWTH AMONG THE SURVIVOR OF MYOCARDIAL INFARCTION PATIENTS AND THEIR SPOUSES

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ABSTRACT

ENVIRONMENTAL AND INDIVIDUAL RESOURCES, PERCEPTION OF THE EVENT, COGNITIVE PROCESSING AND COPING AS FACTORS LEADING TO POSTTRAUMATIC GROWTH AMONG THE SURVIVOR OF MYOCARDIAL INFARCTION PATIENTS AND THEIR SPOUSES

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Posttraumatic Growth (PTG), known as "antithesis" of Post Traumatic Stress Disorder (PTSD) (Tedeschi, Park, & Calhoun, 1998, p.3), has been highlighted in the literature as a positive outcome of the trauma. In the literature, environmental resources (e.g., social and familial support), individual resources (e.g., personality traits, socio-demographic variables), perception of the event (e.g., type of trauma, duration of trauma), cognitive processing (e.g. impact of event, religious participation), and coping (e.g. problem focused coping, emotion focused coping) were found as possible factors on the development of PTG. In the present study, a model to predict PTG in the patients suffering from myocardial infarction (MI; heart attack) and their spouses was tested on

the basis of environmental and personal resources, the perception of the event and cognitive processing as latent variables. The model, developed by Schaefer and Moos (1998), was empirically analyzed for the first time with patients suffered from myocardial infarction and their spouses by structural equation model (SEM) using AMOS program. MI patients getting the treatment in various hospitals in the city of Bolu (N=151) and their spouses (N=137) completed the measures in 1.5-2 hours sessions. The analysis of the model with the MI patients' data revealed that both environmental resources and individual resources demonstrated indirect effects on PTG via the effect of the perception of the event, cognitive processing and coping. On the other hand, the analysis of the model for the spouses revealed that individual resources demonstrated indirect effects on PTG through the effect of the perception of the event, cognitive processing and coping while environmental resources did not show significant indirect effects on PTG,. The findings were discussed in the context of recent theoretical models of PTG, shortcomings of the current study, clinical implications, and suggestions for future research.

Key Words: Posttraumatic growth, environmental factors, individual factors, cognitive processing, myocardial infarction patients and spouses of patients

ÖZ

MİYOKARD ENFAKTÜS HASTALARI VE EŞLERİNDE TRAVMA SONRASI GELİŞİMİN BELİRLEYİCİLERİ OLARAK ÇEVRESEL VE BİREYSEL KAYNAKLAR, OLAYI ALGILAMA, BİLİŞSEL İŞLEMLEME VE BAŞ ETME

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Travma Sonrası Stres Bozukluğunun (PTSD) bir "antitezi" olarak bilinen (Tedeschi, Park, & Calhoun, 1998, p.3) Travma Sonrası Gelişim (TSG) literatürde travmanın pozitif bir sonucu olarak ele alınmaktadır. Literatürde, çevresel kaynaklar (örn., sosyal ve ailesel destek), bireysel kaynaklar (örn., kişisel özellikler, sosyo-demografik değişkenler), olayı algılama (örn., travmanın türü, travmanın yaşanma süresi), bilişsel işlemleme (örn., olay etkisi, dine katılım) ve baş etme (örn., problem odaklı baş etme, duygu odaklı baş etme) TSG gelişiminde olası önemli faktörler olarak yer almaktadır. Bu araştırmada, miyokard enfarktüsü (MI; kalp krizi) geçiren hastalarda ve eşlerinde çevresel ve kişisel kaynakların, olayı algılamanın, bilişsel işlemlemenin ve baş etmenin gizil değişken olarak TSG'yi yordayıp yordamadığı bir model çerçevesinde

test edilmiştir. Schaefer ve Moos (1998) tarafından geliştirilen bu model AMOS programı kullanarak yapısal eşitlik modeli ile kalp krizi hastalarında ve eşlerinde ilk kez görgül olarak analiz edilmiştir. Bolu ilindeki çeşitli hastanelerde tedavi gören MI hastaları (N=151) ve eşleri (N=137) 1.5-2 saat süren bir oturumda ölçekleri doldurmuşlardır. MI hastalarından elde edilen veriler için model test edildiğinde, hem çevresel hem de bireysel kaynakların, olayı algılama, bilişsel işlemleme ve baş etme yoluyla TSG üzerinde dolaylı etkisi olduğunu ortaya koymuştur. Diğer taraftan, model eşler için test edildiğinde, çevresel kaynakların TSG üzerinde dolaylı etkisi olmadığı görülürken, bireysel kaynakların olayın özellikleri, bilişsel işlemleme ve baş etme yoluyla TSG üzerinde dolaylı etkisi olduğu ortaya konmuştur. TSG ile ilgili yakın zamanda ortaya atılan modeller, araştırmanın çıktıları ve ilerideki araştırmalara öneriler çerçevesinde sonuçlar tartışılmıştır.

Anahtar Kelimeler: Travma sonrası gelişim, çevresel faktörler, bireysel faktörler, bilişsel işlemleme, miyokard enfarktüslü hastalar ve hasta eşleri

To My Lovely Husband

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INTRODUCTION

The role of traumatic events such as military combat, natural disaster, terrorist incident, serious accident, acute or chronic illness, imprisonment, and violent personal assault on the individual's psychological well being have been investigated in a number of studies. In these studies (e.g., Laufer & Solomon, 2006; Navia & Ossa 2003; Salo, Punamaki, & Qouta, 2004; Schnurr, Hayes, Lunney, McFall, & Uddo, 2006; Ursano et al., 1999), Post Traumatic Stress Disorder (PTSD) defined as symptom triad of re-experiencing, numbing/avoidance and hyperarousal (APA, 1980) have been mostly examined. Depression is also frequently cited disorder after experiencing the traumatic events (Antoni et al., 2001; Courtois, 2004; Feiring, Taska, & Lewis, 2002; Joseph & Linley, 2005; Kendler, Karkowski, & Prescott, 1999; McDermott, 2004). It has been considered that experiences of the individuals are more likely to be negative subsequent to the traumatic incidents. Therefore, a majority of the studies have examined the negative impact of traumatic events on the individuals (Wortman, 2004). Conversely, the traumatic events may be precursors to positive, negative, and characteristically the mixture of negative and positive experiences (Calhoun & Tedeschi, 2004; Jang, 2004)

that may be seen in metaphors used in many cultures. For instance, the Chinese symbol of 'crises' combine the characters for danger and opportunity together (Cadell, Regehr, & Hemsworth, 2003). Without ignoring the potential serious effects, traumatic experience may primarily activate the positive outcomes for the individuals (Moran & Shakespeare-Finch, 2003; Park, Cohen, & Murch, 1996) due to cognitive emotional processing (Cordova, Cunningham, Carlson, & Andrykowski, 2001), protecting value to threat to life (Davis & McKearney, 2003), threat to loss (Cordova et al., 2001), and threat to safety. This kind of experience may motivate individuals to reorder their views of themselves, others, and their world. Individuals may initiate to evaluate benefits subsequent to the traumatic experience. Besides the individual gains, traumatic experiences may enhance the properties of cultural systems (Jang, 2006) as well.

Lately, adverse reactions to the trauma have been emphasized by various studies (e.g. Fortune, Richards, Griffiths, & Main, 2005; Paton, Voilanti, & Smith, 2003) such as positive psychosocial transformations in the aftermath of crises. Sooner than the negative impact of major life events, adverse reactions to trauma have been verified (Almedom, 2004; Britt, Adler, & Bartone, 2001; Calhoun & Tedeschi, 1998b; Carver, 1998; Moran & Shakespeare-Finch, 2003; Rabe, Zöllner, Maercker, & Karl, 2006). Carver (1998) accepts that change in the current situation subsequent to the trauma generate positive transformation. Recently, various studies have tried to explain how this positive transformation can occur among the individuals. One satisfactory explanation was given by Calhoun and Tedeschi (1998a) who said that "[t]he trauma leads to questioning and reevaluation of many important assumptions previously held" (p.360).

Traumatic experiences may shake the assumptive world of the individuals that lead to various changes in life; trauma can provide opportunity for gain (Carver, 1998), positive human functioning (Linley & Joseph, 2004), positive psychological changes (Park & Helgeson, 2006; Rabe, Zöllner, Maercker, & Karl, 2006; Woodward & Joseph, 2003), and even positive physical health outcomes (e.g., improvement in immune reactivity) (Epel, McEven, Iscovics, 1998; Lechner & Antoni, 2004; Milam, 2006; Park & Helgeson, 2006). Tebes, Iris, Vasquez, and Perkins (2004) offered three types of positive transformations namely discovery about oneself, others, and life in general.

Shifting perspective to the growth subsequent to the traumatic event should be essential particularly for clinicians working with trauma experienced individuals (Calhoun &Tedeschi 1998b; Cryder, Kilmer, Tedeschi, & Calhoun, 2006). Also, facilitating growth is crucial for mental health professionals dealing with traumatic problems (Cadell et al., 2003; Calhoun & Tedeschi, 2001) and taking on the more positive psychological perspective (Joseph, 2004). Recently, there has been a shift from illness or deficit oriented assessment to strength based assessment and healthy adjustment approaches to the traumatic experiences. Nowadays, there has been also a tendency to presume “everything goes well” rather than presume “everything goes bad” (Tedeschi & Kilmer, 2005).

One of the frequently examined adverse reactions to the trauma is posttraumatic growth (PTG). In the following text, the theoretical review of PTG is going to be expressed by defining the term of PTG and other related terms, conditions for the development of PTG and controversial issues in PTG, domains and the assessment tool of PTG, models of life change and PTG, life crises and personal growth model, factors

affecting the PTG, PTG samples suffering a variety of life crises, PTG reactions due to heart disease, and PTG studies with Turkish samples.

1.1 PTG and Related Terms

Resiliency, adjustment and PTG are some concepts examined beneath the adverse reactions to trauma. However, PTG is the mostly investigated phenomenon among other concepts. Tedeschi and Calhoun (2003) declared that the rate of the development of PTG is more than 30% in the various kinds of trauma survivors. Moreover, PTG is seen as "antithesis" of PTSD (Tedeschi, Park, & Calhoun, 1998, p.3) and the end product of struggling with painful stressors (Tedeschi & Calhoun, 1995). According to Joseph (2004), while the PTSD scores of the individuals' decrease, PTG scores increase.

PTG denotes occurrence of positive changes subsequent to trauma or major life crises (Calhoun, Cann, Tedeschi, & McMillan, 2000; Tedeschi & Calhoun, 2004; Tedeschi & Kilmer, 2005), particularly observed in the individual's views of self, relationship with others, and philosophy of life (Calhoun & Tedeschi 1998b; Calhoun & Tedeschi, 2001; Tedeschi, 1999). It does not symbolize returning to the baseline (Wortman, 2004); it is a kind of revision (Bellizzi & Blank, 2006), improvement (Tedeschi & Calhoun, 2004) and a movement beyond the pre-trauma levels of adaptation (Cryder et al., 2006; Joseph, 2004; Sheikh, 2004). It can be seen as a worldwide "gift" following the event (Calhoun & Tedeschi, 1998b, p. 236) since the individuals disclose positive changes in some life circumstances that have been never experienced.

PTG as a term have been derived from existentialism and humanism. Existentialism focused on the purpose, goals, and values of the individuals (Yalom, 1999; Wheeler, 2001). Existential challenges such as whether life has any meaning may be experienced after people suffer from a traumatic event (Milam, 2004). Search for meaning can be described as reinvestment of life (Wheeler, 2001), particularly related with how the individuals decide on spending the rest of their lives (Tedeschi, 1999). Linley (2003) explained traumatic process by Hegelian terminology. He stated that "a basic Hegelian conceptualization of positive adaptation to trauma could be proposed as life (thesis) shattered by trauma (antithesis), and regenerated through, and towards wisdom (synthesis)" (p.603). Milam (2004) accepted traumatic events as a catalyst. Traumatic events may shake the assumptive world of the individuals, and result in positive psychological outcome (Yalom & Lieberman, 1991). Chen (1997) mention that "as death reminds us of the transitory nature of life, grief provides us with a good opportunity for personal, and spiritual growth" (p.79). Tedeschi (1999) argues that PTG changes the self perception of the individual as a 'victim' of trauma to as a 'survivor' of the trauma (p.322).

Perhaps the major source of concern and discrepancy within the field involves the use of term 'growth'. PTG has been variously referred as positive psychological challenges (Yalom & Lieberman, 1991), positive changes (Woodward & Joseph, 2003), positive adaptation (Linley, 2003), adjustment (Navia & Ossa 2003; Park, 1998), benefit finding (Carver & Antoni, 2004; Pakenham, 2005; Tomich & Helgeson, 2004), resilience (Newman, 2005), thriving (Carver, 1998; Cohen, Cimbolic, Armeli & Hettler,1998a; Epel et al., 1998), adversarial growth (Fortune et al., 2005; Joseph &

Linley, 2005; Linley & Joseph, 2004; McDermott, 2004), perceived benefits (Mc Millen, Smith, & Fisher, 1997), constructing benefits, stress related growth (Park et al., 1996), and positive illusions (Tedeschi, Park, & Calhoun, 1998). Tedeschi et al. (1998) favor using the term "posttraumatic growth" since other descriptions do not comprehend the meaning of posttraumatic growth that includes the development of individuals' pre-trauma level of adaptation in the aftermath of the trauma. According to them, "stress related growth" does not obviously label the highly stressful events. "Perceived benefits" or "positive illusions" imply that benefits may not be real or valid since PTG leads to transformative life changes, not the perceptual changes (Tedeschi & Calhoun 1996).

Besides, PTG is distinctly different from resiliency, and adjustment terms. The term "resilience" refers to regaining prior level of functioning (Bonanno, 2004; Jang, 2006; Linley, 2003; Paton et al., 2003) or "bouncing back" of the individual's current functioning (Paton et al., 2003, p. 4). It means returning to the homeostatic condition (Carver, 1998), and a kind of adaptive coping (Hofmann, 2006). Conversely, growth experienced individuals develop higher level of functioning as compared with the previous level of adaptation (Janoff-Bulman, 2004; Joseph, 2004; Paton et al., 2003). Linley and Joseph (2004) pointed out that PTG is developed in the process of resilience. Consequently, PTG may be accepted as a next level of resilience.

Most commonly used, and roughly a synonym term of PTG is "thriving" (Calhoun & Tedeschi, 1998a). Thriving is accepted as a kind of growth in skills, relationships, and confidence (Carver, 1998); but this term has varied from one study to another. There have been controversial viewpoints in order to use the term PTG, and

thriving interchangeably. Since "thriving" is criticized as being applied to healthy living circumstances (Tedeschi et al., 1998), and not requiring significant threat to fundamental schemas (Calhoun & Tedeschi, 1998a; Tedeschi & Calhoun, 2004), using the term of "PTG" may be preferred in various studies as is used in this study.

1.2 Conditions for the Development of Posttraumatic Growth

According to Carver (1998), all negative life events do not lead to growth. On the other hand, his criticism has been disproved by many studies describing the necessary conditions for PTG. Trauma should be severe enough to create threat to the individuals, and low level of stress does not lead to PTG (Tedeschi & Kilmer, 2005). Conversely, Aldwin and Levenson (2004) highlighted that relatively small stressors may also create change gradually. Additionally, the high level of stress may not necessarily lead to PTG; individuals rather may gone through "shutting down" (Lechner & Antoni, 2004, p.39) which is a kind of negative experience. Consequently, studies in the literature try to clarify conditions for the development of the PTG.

Along lines with these debates, traumatic experiences, and stressful life events may be used interchangeably in the literature. They can activate coping mechanism of the individual, utilize social support, and shape the schemas of the individual (McVeigh, 2005) due to having expectation of harm, threat or challenge (Hofmann, 2006). Ordinary events, occurring rapidly, and comprehensively (Aldwin &Levenson 2004) do not promote growth (Hofmann, 2006). Shakespeare-Finch, Smith, Gow, Embelton, & Baird, (2003) mention that "events must be upsetting enough to challenge individual's goals" (p. 59).

Tedeschi and Calhoun (2004) used a much broader, and less restrictive concept than APA such as “highly stressful events”, “traumas” or “crises” (p.1). In accordance with them, threatening aspects of the traumas to the basic schemas of the individuals’ are essential in order to develop PTG. In other words, if the traumatic event can severely shake, and threaten the basic schemas of the individual, PTG is more likely to occur. On the other hand, Wortman (2004) conceptualized that when individuals’ assumptions have been shattered by the event, growth is less likely to occur. According to her, the main theme that provides growth is the threat to life rather than “shattering assumptive world”.

The role of the duration of distress is also investigated in the development of PTG. Studies showed that PTG occurs if distress continues for a long time. For instance, continuous distress was found as the best predictor of posttraumatic growth in a study conducted with breast cancer survivors (Francis, 2004). Besides, distress and PTG were positively correlated among both HIV/AIDS caregivers (Cadell et al., 2003), and holocaust child survivors (Lev-Wiesel & Amir, 2003). On the other hand, one of the critical debates in the literature is that whether PTG is independent from the psychological distress. Some inconsistencies exist in the literature regarding this issue (Weinrib, Rothrock, Johnsen, & Lutgendorf, 2006). Studies conducted with bone marrow transplantation patients demonstrated that patients experiencing greater distress previous to transplantation were not experiencing greater growth after the transplantation (Widows, Jacobsen, Booth-Jones, & Fields 2005). In contrast to this finding, Frazier, Conlon, and Glaser (2001) conducted a longitudinal study with sexual assault survivors, and showed that while the positive changes increased, negative

changes decreased over the time. General tendency is that PTG is not necessarily related with the decrement in the level of distress or high happiness or increment in the well being. All of these experiences may arise at the same time in the aftermath of traumatic life events (Calhoun & Tedeschi, 1998b; Laufer & Solomon, 2006; Linley & Joseph, 2002; Tedeschi & Kilmer, 2005). It has been suggested to accept the paradoxical nature of PTG, since PTG occurs as a result of great distress, and is often maintained through continuous distress (Tedeschi & Kilmer, 2005). Actually, it has been highlighted that increment of pain, and distress should be necessary for this kind of growth (Calhoun & Tedeschi, 1998b).

The effect of continuous distress on PTG has been explained by the power of changing assumptive world of the individuals', and triggering the cognitive processing. Firstly, continuous distress shakes the assumptive world of the individual (Calhoun & Tedeschi, 1998b) which is necessary to develop PTG. Secondly, it leads to cognitive processing which affects the development of PTG (Tedeschi & Kilmer, 2005). The relationship among continuous distress, cognitive processing, and PTG are highlighted behind the rationale of this issue.

1.2.1 Controversial Issues in PTG

Despite the investigated conditions for the development of the PTG in a number of studies, there are also some issues raised as controversial in the PTG literature. The time course, the time frame, and the dimensionality of PTG, PTG in children, and adolescents, using control groups in PTG studies, PTG as a group or organizational variable, limitation in the assessment of PTG, and not empirically testing the theory

driven hypotheses are some examples of these issues.

The time course of PTG is not known very well (Calhoun et al., 2000; Linley & Joseph, 2002). While PTG is accepted as a process, and outcome in a number of studies (Fortune et al., 2005; Maercker & Zoellner, 2004; Tedeschi et al., 1998), this is not accepted as true in the other ones. Whether it happens as a continuous process or as an immediate reaction is not exactly known, and studies try to clarify, and differentiate this debate. In this controversy, general tendency is that individuals experiencing the traumatic events portray PTG as an outcome rather than a coping mechanism (Calhoun & Tedeschi, 1998b; Park & Helgeson, 2006; Tedeschi & Calhoun 2003; Tedeschi & Kilmer, 2005) or process (Cryder et al., 2006; Linley & Joseph, 2005) since PTG occurs gradually (Joseph, 2004).

The time frame of the PTG has been also discussed in the related literature. Linley and Joseph (2004) suggested that PTG develops over time, with most occurring within two weeks, and two months period, and reported levels remaining stable through 6, 12, and 36 month periods. When looking at the existence of PTG over weeks to months, several findings emerge. Frazier and colleagues (2001) demonstrated that sexual assault survivors reported positive changes even after the two weeks of trauma. They found that a greater change occurred between 2 weeks to 2 months. Moreover, according to Weiss (2004), the peak levels of PTG are reached within the first year from diagnosis of disorder. Park and Helgeson (2006) highlighted that reported growth is more likely related to positive outcomes after two years passed from trauma. Mostly suggested, and commonly used time frame of PTG is a year after the traumatic event (Cohen et al., 1998a; Cohen et al., 1998b).

Generally, the inconsistency in the time frame of the development of PTG may be depending on the effect of rumination, and restructuring the event which build up in the weeks, months, and even years after the event (Calhoun & Tedeschi, 1998b; Schaefer & Moos 1998). Clarifying the time frame can also provide clearer understanding of the recovery process after different traumatic experiences. For instance, Mc Millen and colleagues (1997) indicated that perceived benefits in 4 to 6 weeks significantly predicted the posttraumatic stress 3 years after the disaster. It can be suggested that primary reactions after the trauma can shape the further reactions of individuals. Further longitudinal studies are suggested in order to elucidate recovery process after a traumatic event (Cohen et al., 1998b; Calhoun et al., 2000; Calhoun & Tedeschi, 1998a; Frazier et al., 2001; Weiss, 2004a) since it becomes easier to see some differences in the reports of growth over time (Calhoun & Tedeschi, 2004; Frazier et al., 2001). For instance, some changes of PTG (e.g., social support increment) are seen immediately after the traumatic event, while others (e.g., spiritual change) are seen after months or years (Cohen et al., 1998b).

As for the dimensionality, Calhoun and Tedeschi (1998a) believe that PTG is multidimensional. If it was a unidimensional concept, positive change in one domain would lead to positive change in another domain (Cohen et al., 1998a). If it is multidimensional, growth in one domain can be significantly different from growth in other domains (Calhoun & Tedeschi, 1998a).

PTG in children and adolescents has been also discussed in the literature. PTG is mostly studied with adult samples, but studies with children (Salter & Stallard, 2004), and adolescents (Milam, Ritt-Olson, & Unger, 2004; Tedeschi & Kilmer, 2005) are

conducted as well. The major problem of doing research on children, and adolescents is the difficulty in making a distinction between maturational growth, and posttraumatic growth (Cohen et al., 1998b). Children are too young to understand the traumatic experiences (Clements, Asaro, Henry, & McDonald, 2005). Specifically, child victims of sexual abuse are less likely to develop PTG because they are psychologically, and physically immature (Courtois, 2004). Contrary to some theoretician's opinion (Ickovics, Meade, Kershaw, Milan, Lewis, & Ethier, 2006), Tedeschi and Calhoun (2003, 2004) emphasized that PTG may not be experienced for the children. According to them, the term of PTG may be the case for adolescent, and adult individuals who can change an established set of schema when facing a trauma. For instance, adolescents report significant growth after stressful life events (Ickovics et al, 2006; Laufer & Solomon, 2006).

The use of control groups is another unresolved issue in PTG studies. Tedeschi and Calhoun (1996) used university students who did not experience traumatic events as control groups, and compared the scores of these students with university students who did experience traumatic events. They found that university students' experienced traumatic events had higher scores than the control groups. In the same way, Cordova and his colleagues (2001) found that breast cancer survivors had significantly higher scores on the Post Traumatic Growth Inventory (PTGI) than the scores of healthy controls. These results demonstrate the need of to use control groups in PTG studies. Cohen and colleagues (1998a) recommend comparing the scores of victims of crises with the control group participants. Furthermore, they advocate the necessity of using pre-event, and post-event measures of personality, coping, and adjustment. However,

finding pre-event measures is difficult because it is not possible to identify the potential victims before the occurrence of crises.

PTG is seen as group or organizational variable in various studies. PTG may occur in a group, a family, a classroom, a college, an institution, or larger social groups (Bloom, 1998). Cohen et al. (1998b) suggested that the death of a child may lead to profound changes in family members, and the child's classroom. Interventions should be directed to all individuals affected by the traumatic experience. For instance, couple therapy after the death of a child may improve the quality of family life (Schnurr et al., 2006). However, these assumptions have not been empirically verified in the literature yet.

Limitations in the assessment of PTG with self report data have been also highlighted. In accordance with Davis and Mc Kearney (2003), positive aspects of life were seen to protect against the danger of not living. They mention, PTG as an "illusory" concept that individuals react in order to protect themselves, and to enhance their egos (p. 477). Likewise, Smith and Cook (2004) emphasized that individuals have a tendency to recall positive events after traumatic experiences. Additionally, Park and Helgeson (2006) pointed out that those individuals report positive parts of the event are more likely to relieve from the negative effects of the trauma. According to them, this may be interpreted as a cognitive bias since individuals may overestimate their gains after the traumatic experience when they report their PTG. Maercker and Zoellner (2004) refer to this concept as "PTGI mirrors self-enhancement bias" (p.46).

Why the trauma survivors need the self enhancement bias is questioned in the literature. Nolen-Hoeksema, and Davis (2004) enlighten the motive behind this bias as

an individual's need of self protection. Besides, Park (2004) and Frazier and Kaler (2006) explained this situation as an individual's need of alleviating stress. These reactions may be accepted as defensive illusions (Wortman, 2004).

There have been efforts to differentiate really experienced PTG from the perceptual ones. The ways of decreasing the bias in order to proof the existence of PTG have been examined in various studies. At first, the reports of growth may be accepted as perceptual in the absence of cognitive processing (Park & Helgeson, 2006). In other words, when the cognitive processing is absent in one individual, reports of PTG may not be really lived by the individual. Besides, consistency between PTG scores and other behavioral measures related to changes in life conditions (e.g., making diet, and sport activities, quitting alcohol, and cigarette use), spouses' perception of PTG, and asking open ended questions related to positive or negative consequences of the event in the individuals' life may demonstrate whether PTG is really experienced. In one study, PTG, and substance use behavior negatively related among a group of adolescent (Milam et al., 2004). Substance use may reflect the incidence of negative changes. In Milam's study (2006), there was no significant relationship between the PTG scores, and the healthy behaviors of the HIV patient. Therefore, the PTG scores may be accepted as perceptual. Besides, consistency between the self report ratings of patients, and patients' spouse's or relatives may validate the development of PTG in the patients (Cordova et al., 2001). For instance, Weiss (2002) demonstrated positive correlation between the scores of marital partners with reference to wives' (diagnosed as breast cancer) stress-related growth ($\underline{r} = .51$). Among the significant others, there had been greater agreement between couples' assessment of stress-related growth when compared the assessment of

their friends or relatives (Park et al., 1996). Besides, asking open ended questions related to the negative and positive consequences of the event may provide important findings whether growth is experienced by the individuals. However, there are some disadvantages of using open ended questions that do not give the complete picture of growth (Park & Helgeson, 2006), and underestimate the perceived growth (Nolen-Hoeksema & Davis, 2004).

Lastly, one of the criticism in PTG studies is that positive changes following traumatic experiences have not been tested by theory driven hypothesis (Widows et al., 2005) even testable theories may offer the systematic frame work in order to understand the positive transformations (Mc Millen, 2004). Christopher (2004) suggested looking at the broader theory driven perspective in order to understand traumatic stress response comprehensively. Although different models of PTG suggested in the literature, only few of them have been empirically tested.

In future studies how PTG have varied according to the time course, time frame, and dimensionality is a noteworthy question. How the reactions of the family members to traumatic event in terms of PTG differ should be examined. Besides understanding PTG with both self report data and with the other measures (e.g., behavioral indices, open ended questions, and spouses' evaluations) should be examined by theoretically driven hypothesis.

1.3 Domains of PTG, and Assessment Tools Measuring PTG Domains

In the literature, there is a debate related to the domains of PTG. Studies utilize that PTG has either unidimensional or multidimensional construct (Park, 2004; Smith & Cook, 2004). PTG domains are mostly defined by Tedeschi and Calhoun. At first, they

determined three domains including views of the self (learning about one's vulnerabilities, the value of preparation, and new problem solving skills, and developing an enhanced sense of self-efficacy or self-reliance), relationships (a deepening appreciation of relationships, increasing self-disclosure, and emotional expressiveness, and being more willing to accept help from others), and philosophy of life (an increased appreciation of life, and stronger spiritual beliefs) in most of their studies (i.e. Calhoun & Tedeschi, 1998b; Tedeschi et al., 1998). Recently, Calhoun and Tedeschi (2004) describe PTG into five domains: (1) seeing new possibilities, (2) changed relationships, (3) paradoxical view of being stronger scarcely more vulnerable, a greater appreciation of life, and (5) changes in the individual's spiritual, and existential domain.

Development of the domains of PTG may vary from individual to individual, and from time to time after the traumatic event. For instance, Polatinsky and Esprey (2000) mentioned that when the time length increases after the loss of the loved one, individuals' appreciation of life increases, and an individual finds new possibilities in their lives. Similarly, Frazier et al. (2001) demonstrated that while the increment in empathy may be seen immediately after the sexual assault, survivors may recognize strengths, and purpose in life later on.

Since the conceptualization of PTG varies across studies, it is difficult to assess PTG only by self-report measures (Cohen et al. (1998b). This difficulty is particularly observed in the external aspects of PTG (Calhoun & Tedeschi, 1998b) which means transferring the positive changes behaviorally to one's life. However, some individuals may show the signs of growth in the relationship immediately after the event while not demonstrating any signs of spirituality.

Scales developed in order to measure PTG consist of different parts of PTG such as positive change in the environment, and interpersonal skills (Schaefer & Moos, 1998). Consequently, reported PTG of the individuals may differ depending on the measurement scale (Park, 2004). PTGI, Stress Related Growth Scale (SRGS), Changes in Outlook Questionnaire, The Revised Stress Related Growth Scale, The Thriving Scale, Illness Cognition Questionnaire, and Perceived Benefit Scale are some examples of these scales developed in order to assess PTG.

PTGI, and SRGS are mostly used scales in the PTG literature, and they consist of similar items. The main advantage of PTGI is that it allows assessing the independent, and specific domains of growth (Cohen et al., 1998a). This scale has satisfactory reliability, and internal validity (Maercker & Zoellner, 2004). However, the factor structure of the PTGI might change depending on the type of trauma, the characteristics of the trauma victims (e.g., age, gender), and the time frame of the event (Cohen et al. 1998a; Tedeschi, 1999). For example, mildly stressful event, and homogenous types of events may lead to the lack of factor structure.

1.4 Models of Life Change, and PTG

In the literature, models of PTG that conceptualize the role of various factors and variables in the development of can be classified into three groups: (1) models describe intentional change, (2) models describe unintentional change, and (3) an integrated model (O'Leary, Alday, & Ickovics, 1998).

Models describing intentional change mainly focus on the events including a gradual process such as divorce. The three models under this category have been

highlighted by O'Leary et al. (1998): Nerken's, Mahoney's, and Hager's model. Firstly, Nerken's model examines the role of core self, and reflective self in PTG. According to them, PTG occurs if damaged self is repaired by the adaptive changes in the core self (ideas, talents, and purposes), and reflective self (meaning making, perception, self definition, and attitude). Secondly, Mahoney's model mentions the role of status quo, disequilibrium, and new synthesis. Traumatic events change the status quo, and produce disequilibrium in the individuals. If change does not exist, individuals return to status quo condition again. However, if individuals try to restructure the events, new synthesis may occur. Thirdly, Hager explains traumatic process with chaos, and growth concepts. In this model, chaos is a synonym of disequilibrium, growth is a synonym of concept of synthesis. Growth reveals a new reality for individuals such as finding different alternatives, and new perspectives in life.

Models describing unintentional change involve quick responding (O'Leary et al., 1998). These models are more appropriate for the sudden traumatic experiences that can not be controlled by individuals such as acute illnesses, terrorist incidents, serious accidents, and natural disasters. Five models describing unintentional change have been highlighted by O'Leary et al. (1998): Miller and C'de Baca, O'Leary and Iscovics, Aldwin, Tedeschi and Calhoun and Schaefer and Moos models. These five different models share and overlap in terms of explaining the factors of PTG. For instance, Miller and C'de Baca, O'Leary and Iscovics and Aldwin prefer to compare previous level of post traumatic functioning of the individuals to the trauma. While Miller and C'de Baca describe PTG as a higher level of functioning, O'Leary and Iscovics name this as a thriving. Besides, Aldwin name PTG as a positive transformational coping. Apart from

these theories, a few of them question the factors influencing PTG. For instance, Tedeschi and Calhoun emphasized the role of personality characteristics that generate growth potentials among individuals. Besides, Schaefer and Moos questioned the role of environmental, individual, and event related factors on cognitive processing, and growth reactions. Their model is going to be explained in detail later on.

An integrated model, suitable for both intentional, and unintentional changes, is suggested by Calhoun and Tedeschi (1998b). According to their model, person has some experiences before the trauma. These experiences may influence the initial reactions of the individuals (e.g., coping strategies with emotional distress) after any traumatic experiences. This period is followed by the automatic rumination that distinguish using coping strategies (e.g., individuals accept to avoid unreachable goals), and deliberate rumination. Additionally, social support affects the automatic, and deliberate rumination, and coping processes in the growth process.

1.4.1 Life Crises, and PTG: One of Unintentional Change Model

Schaefer and Moos suggested a conceptual framework namely "life crises, and personal growth model" to explain PTG as an unintentional change model. According to their model, individual (e.g., cognitive ability, health status, motivation, self-efficacy, hardiness, temperament, self-reliance, self-control, and prior experience), and environmental resources (e.g., finances, life transitions, better quality in relationship, family, and social support) foreshadow the event related factors during the life crises or the transition period (e.g., leaving home, marriage, divorce etc.) (O'Leary et al., 1998). In turn, this period can shape cognitive appraisal, and coping responses of the

individuals. As a result of cognitive appraisal, and coping style, positive outcomes of crises may exist during the transition period. Specifically, active, and problem focused coping increase the probability of personal growth (O'Leary et al., 1998). The model has been presented in Figure 1.

It has been suggested that this model derives from the individual need, and explains the traumatic event in a more mature way and also emphasizes the role of social support and problem solving coping in PTG (Karancı & Erkam, in press; Mc Veigh, 2005). The model clearly identifies the fact, and factors contributing to the growth process of the human beings rather than only describing the term of growth or thriving. Schaefer and Moos model have been empirically tested in a small number of studies. One of the well known studies has been conducted by Siegel, Schrimshaw and Pretter (2005). The findings showed that negative affect (ß=-.20), positive reappraisal coping (ß=.15), and emotional support (ß=.30) were significantly predicted PTG among the HIV/AIDS patients. On the other hand, stress related characteristics (e.g., disease stage, number of physical symptoms, and time passed since HIV diagnosis), self-esteem, perceived control, practical support, and positive affect were not associated with growth. In another study, Widows and colleagues (2005) examined PTG reactions of bone marrow transplantation (BMT) patients by multiple regression analyses. Biased recall of BMT experience (ß=.31) was accounted 7% of the variance in PTG. On the other hand, approach coping (ß=.22), psychological distress (ß=.06), and social support (ß=-.04) did not a have significant contribution to PTG.

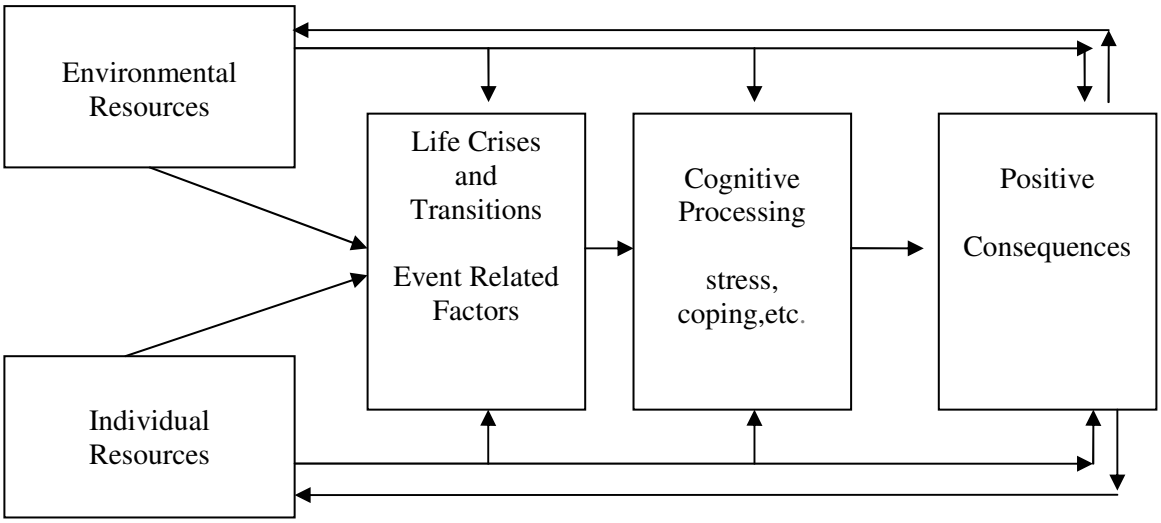

Figure 1: Life crises, and personal growth model of PTG (Schaefer and Moos 1992; cited in O'Leary et al., 1998, p.135)

1.5 Factors Affecting the PTG

People experiencing a traumatic life event cannot be easily accommodated to positive changes in their life following the trauma (Milam, 2004). Various factors should contribute to the accommodation of PTG responses of the trauma survivors. Moreover, these factors might change from one person to another. Additionally, PTG might be developed only in some trauma survivors or victims due to individual differences. Sheikh (2004) stated that "PTG is believed to occur in some individuals" (p.266). Findings suggested that these individual differences in the reports of PTG have been associated with several variables including environmental resources, personal resources, characteristics of the crises, and cognitive processing. These factors can be symbolized

as a complex mosaic, and each mosaic may vary from one individual to another and from one traumatic experience to others (McVeigh, 2005).

In the following section, factors affecting the development of PTG will be classified, and discussed on the basis of the life crises, and growth model. These factors can be classified into four groups: environmental resources, individual resources, characteristics of the traumatic event, and cognitive processing.

1.5.1 Environmental Resources

Overall, environmental resources, including social support, familial support (O'Leary et al., 1998), marital relationship, (O'Leary et al., 1998), and post crises environment (e.g., finding a new job) (Schaefer & Moos, 1998) should influence the PTG reactions of the individuals. These factors might help individuals to utilize effective coping strategies (Schaefer & Moos, 1998) to increase awareness of trauma (Goldsmith, Barlow, & Freyd, 2004), and to widen PTG into the different aspects of life. Respectively, all these resources will be discussed in terms of their contribution to PTG.

First, social support is the key factor for the collectivist cultures (Jang, 2006). Jang (2006) stated that people living in individualistic cultures have less social support during troubled periods; however, people living in collectivistic cultures have a tendency to be with the other individuals. In this respect, after any traumatic experiences, the people living in a collectivistic culture (such as Turkey) have a propensity to be with other individuals such as family members, friends, and neighbors (Hart, & Poole, 2001).

Social support is another variable which is closely related with the coping, and the adaptation of the individuals. The individuals receiving more social support from

others have a tendency to use approach coping strategy (Schaefer & Moos, 1998). Moreover, after a natural disaster or the divorce of parents, family environment is highly important for the adaptation of children since the quality of parental relationship, or household stability have been changed for the child (Schaefer & Moos, 1998).

More importantly, the role of social support on PTG is extensively studied by considering type, timing, level, availability, and accessibility of social support after crises or traumatic experiences (Almedom, 2004). In addition, amount, and type of support are affected by the extent of event (e.g., extent of loss, or severity of illness), depending on having personal resources (e.g., marital status, education), and environmental resources (e.g., social networks) (Schaefer & Moos 1998).

It has been found that PTG was positively associated with general social support in HIV/AIDS caregivers (Cadell et al., 2003), breast cancer survivors (Karancı, & Erkam, in press) and husbands of breast cancer survivors (Weiss, 2004a). When looking at the types of social support, only the social support from friends had a significant correlation to PTG among the holocaust child survivors (Lev-Wiesel & Amir, 2003). General social support, and marital social support had significant correlation in the sample of husbands of breast cancer survivors (Weiss, 2004a). On the other hand, there are some inconsistent findings in the literature. Some studies have been found that social support was not significantly related with PTG (Cryder et al., 2006; Sheikh, 2004; Widows et. al., 2005). Sheikh (2004) interpreted his results as individuals may use social support as a facilitator of cognitive processing rather than companionship.

As a second resource, family member also affects the clinical course of psychological disorders such as PTSD (Schnurr et al., 2006), and chronic disorders such

as cancer (Baider & De-Nour, 2000), and diabetes (Holmes, Yu, & Frentz, 1999). For example, Cordova, and his colleagues (2001) established that when breast cancer survivors perceived their spouses as supportive, they had higher scores on PTG. The quality of marital relationship is important in PTG as well. PTG and marital social support were positively correlated in the sample of husbands of breast cancer survivors (Weiss, 2004a). Husband's PTG was also positively associated with the positive qualities of marital relationship but not the marital conflict. On the contrary, marital commitment, and PTG were not related with in a study conducted with the same population (Weiss, 2004b).

In addition to the patients or trauma survivors, PTG might also develop in the family members. For example, cancer patients' spouses and other family members were also reported PTG during the time course of the disease (Sharon et al., 2004). Therefore, lately, studies on PTG have been a tendency to examine PTG in the family members as well as patients. Any evidence of PTG in the family members shows that PTG may be experienced simultaneously by means of supportive family environment. In the Weiss's (2004a) study with breast cancer patients, husband's PTG was positively associated with wife's PTG. Marital commitment, marital support and general social support are the critical factors that contribute to the development of PTG in the husband's of breast cancer survivors (Weiss, 2004a). Therefore, in studies with the cancer patients, Weiss (2004b) recommends assessing the development of PTG in the spouses and young adult children in the family as well as the cancer patients.

Finally, the post crises environment is important for the individual to continue positive transformation (Schaefer & Moos, 1998). Both positive events (e.g., finding a

new job), and the negative events (e.g., serious illness in the close family members) after the trauma might have an input for the positive recovery of the individuals (Schaefer & Moos, 1998). Additionally, the role of life style changes (e.g., quitting smoking, and alcohol consumption, weight loss) on PTG have been also investigated (e.g. Siegel & Schrimshaw, 2000). Life style changes are particularly observed after suffering from some diseases such as heart problems (Paul & Sneed, 2004), AIDS (Milam, 2004), and cancer. However, In Milam's (2006) study, there was no significant relationship between the PTG scores, and the healthy behaviors of the HIV patients. Even the inconsistent results exist in the literature, the relationship between PTG and variables related to life style changes have been taken into account to evaluate PTG in the patients with physical disorders.

1.5.2 Individual Resources

Socio-demographic variables and personality traits are some individual resources considered in the PTG literature. In some studies, coping, and cognitive processing is also accepted as individual resources. However, these variables will be explained under the independent headings due to the frame of Schaefer & Moos (1998) model.

1.5.2.1 Socio-demographic Variables

Age, gender, education level, socio-economic status (SES), and marital status are among socio-demographic variables related with PTG. The effect of age generally depends on the type of the crises (Schaefer & Moos, 1998). For example, older women with cancer (Bellizzi, 2004; Sharon et al., 2004), younger women with breast cancer (Bellizzi & Blank, 2006; Lechner & Antoni, 2004; Schaefer & Moos, 1998; Sharon et

al., 2004), younger former refugees (Powel, Rosner, Butollo, Tedeschi, & Calhoun, 2003) younger individuals handling grief (Polatinsky & Esprey, 2000), younger patients with bone marrow transplantation (Widows, et al., 2005), and younger patients with HIV/AIDS (Milam, 2004) are more likely to develop PTG.

In terms of gender difference in PTG, there are controversial results in the related literature. While most of the studies have demonstrated that women are more likely develop PTG than men (i.e. Bellizzi, 2004), some of them did not support these findings (Polatinsky & Esprey, 2000; Widows, et al., 2005). Overall, PTG studies have been conducted with only either men or women participants. Therefore, these studies are limited in identifying gender effect on the development of PTG. For this reason, Calhoun and Tedeschi (1998b) recommended to examine the variables have an influence on PTG in women and men. The difference between men and women in terms of PTG may be related with using different coping mechanisms (Calhoun & Tedeschi, 1998a; Polatinsky & Esprey, 2000), and living in different social life circumstances (Calhoun & Tedeschi, 2001). Additionally, domains of PTG may also be experienced differently by women, and men. For instance, women had higher scores especially on the some of PTG factors except appreciation of life, (Polatinsky & Esprey, 2000), and changes in interpersonal relationship, and spiritual changes (Bellizzi, 2004).

In terms of education level, there has been negative correlation between PTG, and education ($\underline{r}$ = - .37; Widows, et al., 2005). When looking at the dimensions of PTG, the only subscale significantly negatively correlated with education level was spiritual growth ($\underline{r}$ = -.22; Weiss, 2004b). In other words, the patients with higher education had less spiritual growth than those with lower education level.

Socioeconomic status (SES) is another variable affecting PTG. The results on SES are also inconsistent in the literature. Francis (2004) found that lower income level was the best predictor for PTG in the cancer patients. Similarly, Tomich and Helgeson (2004) found that the lower the SES the higher the scores of finding benefit among breast cancer survivors. On the contrary, there has been a significant positive correlation between income, and PTGI (r =.27, p <.05) in a study with breast cancer survivors (Cordova et al., 2001). This result can be interpreted as when having the higher income level, the higher scores of PTG were reported. Contrary to these findings, income, and PTG was found as unrelated among HIV/AIDS patients (Milam, 2004).

As for marital status, married parents had higher scores on growth of appreciation of life in bereavement (Polatinsky & Esprey, 2000). For instance, married breast cancer patients had significant growth in relationships with others (ß=.19, t (210) = 2.67, p < .01, and purpose in life (ß .22, t (210) = 3.13, p < .01); but did not show growth in appreciation of life (Bellizzi & Blank, 2006). Married Multiple Sclerosis (MS) patients were found significantly higher level of satisfaction with life (Pakenham, 2005). On the other hand, Widows, et al. (2005) did not found a significant effect of marital status on PTG.

1.5.2.2 Personality traits

Personality traits such as, hardiness, locus of control, and self esteem are widely emphasized in the PTG literature. Although depression is not a personality trait, the relationship between PTG, and depression is questioned in a variety of studies. Therefore after the personality traits, depression will be discussed in this chapter.

Hardiness (Britt et al., 2001; O'Leary et al., 1998) has been suggested as the key personality variable in PTG. It is defined as a sense of commitment to engage with situation (Linley, 2003), and personal life roles, as a control over the life problems, and as a challenge when confronting problems (Tedeschi et al., 1998). It determines the individuals' need after experiencing trauma (Maddi, 2005). Kobasa, Maddi and Kahn (1982) define hardiness as "a constellation of personality characteristics that function as a resistance resource when encountering with stressful life events" (p. 169). Hardiness makes easier and provides finding opportunity for positive outcomes (Linley, 2003), active involvement of choosing appropriate coping strategy (Florian, Mikulciner, Taubman, 1995), and active involvement in order to find meaning of the stressful events (Bonanno, 2004; Tennen & Affleck, 1998). Individuals may appraise events as less threatened by means of hardiness (Bonanno, 2004).

The components of hardiness are interrelated with each other. Committed individuals can attribute meaning to the events, find vitality even with the rough events, and involve in anything around them (Maddi & Khoshaba, 2003). Besides, they improve their mental health by means of decreasing the need of emotion focused coping (Florian et al., 1995). Commitment aspect of hardiness may decrease the psychological distress by means of repressing the use of avoidance coping strategy (Schaefer & Moos, 1998). Additionally, individuals scored higher on control dimension of hardiness can easily find anything to struggle as a worthwhile, and they do not like to be passive, and powerless (Maddi & Khoshaba, 2003). They could improve their mental health through using problem focused coping increasingly (Florian et al., 1995). Challenged individuals know the value of learning from either positive or negative experience in order to develop

wisdom; in turn, wisdom produces most fulfilled life (Maddi & Khoshaba, 2003). Even limited number of studies conducted on hardiness, three important parts of hardiness (control, commitment, and challenge dimensions) contributes to the development of PTG. For instance, Britt and his colleagues (2001) found that during a stressful time, soldiers found a meaning in their job due to the hardiness they had. For this reason, it can be said that all factors of hardiness (commitment, control, and challenge) had significant contribution in finding benefit from the traumatic event.

Moreover, the role of locus of control on PTG is also frequently emphasized. PTG is accepted as an effective coping mechanism dealing with the controllable events (Smith & Cook, 2004). In addition, trauma affects perception of control in individual. It is considered that internal locus of control is highly related with PTG (Cohen et al., 1998b; Calhoun & Tedeschi, 1998b; Maercker & Herrle, 2003) as well as psychological adjustment (Dağ, 2002). Internal locus of control may lead to strong contingency between event, and outcome (Linley, 2003), and facilitate detection, and the use of the personal resources (Maercker & Herrle, 2003). The individuals with internal locus of control have a desire to act in order to influence outcomes (Linley, 2003). Maercker and Herrle (2003) found significant relationship between external locus of control, and intrusion (r =.46), avoidance (r =.51), and hypervigilance ($\underline{r}$ =.54)symptoms of PTSD. They also found that growth responses, and internal locus of control were significantly related ($\underline{r}$ =.34) in people suffering from Dresden bombing.

Another personality trait that is less likely to be investigated, and seems to have important effect on PTG is self-esteem. Stressful events may give a chance to the individuals regaining their self esteem (Bower, Kemeny, Taylor, & Fahey, 1998). While

low self esteem was found to be related with PTSD (Feiring et al., 2002), high self esteem may be correlated with PTG. On the other hand, self esteem, and PTG relationships were not established in HIV/AIDS patients (Siegel et al., 2005). In general, studies are focused on the relationship between self-esteem, and the other variables. Cryder et al. (2006) found that competency belief related with self had an influence on PTG scores among children. Likewise, Aldwin Sutton, and Lachman (1996) suppose that greater use of problem focused coping, getting social support, and recognizing positive aspects of event increase the self esteem scores of the individuals. Furthermore, according to Hobfoll and Spielberger (1992), individuals with high self esteem obtain more social support. In turn, receiving social support may increase the self esteem, and reinforce the individuals' self worth (Aldwin & Sutton, 1998).

PTG leads to a decrement in depression as an outcome (Park & Helgeson, 2006). Close link between depression, and PTG has been highlighted in a variety of studies. These concepts were generally found as variables that are negatively related (Carver & Antoni, 2004; Milam, 2004; Milam, 2006). Sometimes immediate incidence of depression after trauma serves as a sign of not developing PTG. For instance, if the patients reported depression in the first assessment, they did not report a significant PTG scores in the second assessment of HIV/AIDS patients (Milam, 2004). Besides, depression may lead physical symptoms after disease. For instance, depression was found as a mediator for the relationship between viral symptoms, and the growth of the HIV patients (Milam, 2006). In other words, depression mediates the relationship between the occurrence of viral symptoms and PTG. In another study, the breast cancer patients had higher scores in the PTGI and lower scores in depression (Cordova et al.,

2001). These findings can be interpreted as depression, and growth are negatively correlated.

1.6 Characteristics of the Traumatic Event or Event Related Factors

Depending on the characteristics of the traumatic event, one individual may demonstrate different reactions to it. For instance, if the individual wants to divorce from his/her spouse, he/she may experience positive outcomes. On the other hand, if he/she loses a loved one in a serious accident, the reactions after the event may be dramatic, and positive outcomes could be seen only in the long run. In other words, the types of crises identify the reactions of the human beings.

Acute or chronic traumas may trigger individuals to reorder their lives. According to Schaefer and Moos (1998), intensely experienced events may lead individuals to revalue their lives. Specifically, sudden or acute events such as experiencing an abuse or learning the diagnosis of an illness for the first time may also result in PTG (Calhoun & Tedeschi, 1998b). Furthermore, chronically experienced trauma (like living in the concentration camp, continuous sexual abuse or chronic illness) may lead to PTG (Calhoun & Tedeschi, 1998b) as well. Similarly, repeated exposure to disaster is assumed to be related with growth (Jang, 2006).

The role of the type of traumatic experiences on PTG is extensively studied. Generally, theoreticians focused on some basic factors when evaluating the characteristics of traumatic experiences such as severity of the trauma, the degree of exposure to the trauma, the extent of loss, the scope of the trauma, and its threat to life (Schaefer & Moos, 1998). For instance, whether a trauma is experienced by only the

individual or the whole family or by the community as a whole affects the PTG reactions (Schaefer & Moos, 1998). Moreover, the degree of destruction, and the number of deaths are some variables related with traumatic experiences affecting the PTG scores (Schaefer & Moos, 1998).

In physical illnesses, some factors related with the PTG are initial severity of threat, short term outcome of the event (Schaefer & Moos, 1998), emotional intensity, prognosis of the disorder, severity of the illness (Bellizzi & Blank, 2006), and the duration of the illness (Epel et al., 1998; Polatinsky & Esprey, 2000). At first, how threatening individuals perceive the disorder, and what the short term consequences of the disorder are important determinants for the mental health outcomes of the patients. Individuals perceiving the disorder as threatful may have poor heath outcomes. According to observations, patients frequently ask doctors to degree of threat, and outcomes of operations, and medications after suffering from a heart attack. Their anxiety level was high. They also continuously fear having another attack (Allan & Scheidt, 2006).

Secondly, the emotional intensity, and prognosis of a disease are two lately examined variables in PTG (Bellizzi & Blank, 2006). Women experiencing high emotional intensity at the time of diagnosis of breast cancer reported more significant growth in their relationship with others (ß= .28; $\underline{t}$ (210) = 4.35, $\underline{p}$ <.001); purpose in life (ß= .28; $\underline{t}$ (210) = 3.07, $\underline{p}$ <.01), and appreciation of life (ß= .21; $\underline{t}$ (210) = 3.16, $\underline{p}$ <.01) than women experiencing low emotional intensity (Bellizzi & Blank, 2006). The prognosis of a disorder may be bidirectional: good or bad prognosis. If an illness with poor prognosis is treated successfully with medicine, PTG may also enhance (Schaefer

& Moos, 1998). Patients with poor prognosis, and life threatening diseases may also experience positive changes.

Thirdly, the severity of illness is also commonly assessed variable when examining patients suffering from illnesses. It is sometimes named as a perception of threat. In a study, perception of threat of breast cancer was associated with higher scores of PTG (Cordova et al., 2001). Additionally, it is related with the degree of received social support. Patients may receive more social support from family, and friends in severe or life threatening illnesses (Schaefer & Moos, 1998).

Lastly, time interval between the diagnosis and the present has also been studied as a factor in PTG. Cohen et al. (1998b) recommended that predictors of PTG should be tested as a function of a time frame. When the time interval increased, total PTG scores ($\underline{r}$ =.28), and new possibilities ($\underline{r}$ =.46), and appreciation of others ($\underline{r}$ =.26) dimensions of PTG significantly increased (Polatinsky & Esprey, 2000). Similar results are obtained in another study that yielded significant positive correlation between PTGI, and the time passed since diagnosis ($\underline{r}$ =.24, Cordova et al. 2001; $\underline{r}$ =.13; Pakenham, 2005). On the other hand, time passed since diagnosis, and PTGI were significantly negatively correlated ($\underline{r}$ = -.29; Weiss, 2004b). Contrary to these findings, Lechner and Antoni (2004) did not found significant correlation between PTG, and the time passed since diagnosis with the group of breast cancer survivors. Similar results established in the both Milam's (2004) study with the group of HIV/AIDS patients, and Oaksford et al (2005) study with the group of lower limb amputation patients.

1.7 Cognitive Processing

Weinrib and colleagues (2006) proposed that "…. cognitive processing can naturally occurring as a part of coping with stressor" (p.852). The role of cognitive processing on PTG has been recently questioned. In the literature, controversial results have been obtained related to cognitive processing. While Wortman (2004) do not agree, cognitive processing is an important component in the growth experiences (Calhoun et al., 2000; Sheikh, 2004) occurring gradually (Tedeschi, 1999); and has the utility to lessen discrepancy between individual's circumstances, and optimal functioning (Calhoun et al., 2000). Besides, it may determine the physical well-being as well (Bower et al., 1998). Tedeschi and Calhoun (2003) highlight that "the less cognitive processing, the less PTG was reported by survivors" (p.20). Similarly, the greater the cognitive processing, and event related rumination, the greater the stress related growth (Calhoun et al., 2000; Weinrib et al., 2006).

Calhoun & Tedeschi (2004) recommends a comprehensive evaluation of cognitive processing. On the other hand, full assessment of cognitive processing may not be possible because the link between cognitive processes and growth is not very clear (Calhoun & Tedeschi, 2004). While coping style is accepted as a variable related with cognitive processing (i.e. Schaefer & Moos, 1998), some researchers differentiate cognitive processing into three components: "event related rumination", "quest orientation to religious beliefs", and "individual's level of religious participation" (Calhoun et al., 2000). In the following section, the role of coping, rumination religious participation, and religious belief on PTG are going to be explained.

1.7.1 Coping Strategies

Coping strategies, wide range of cognitive or behavioral responses to manage stress, are accepted as a part of cognitive processing of the individuals (Schaefer& Moos, 1998). Responses may be adaptive (responses helping to reduce stress), and maladaptive (responses not helping to reduce stress). Coping strategies are commonly grouped into two components: emotion focused coping, and problem focused coping. Problem focused coping involves task acting to change a situation (Hofmann, 2006). Emotion focused coping consists of changing the way to interpret the situation (Lazarus, 1993). Different situations require different coping responses, and adaptive strategies (Folkman & Lazarus, 1985). Additionally, coping resources may not have significant effect in all stressful life experiences. For instance, Navia and Ossa (2003) did not found any significant correlation between distress, and coping among the parents of kidnapped children.

How coping accounts on the PTG is a crucial factor (Janoff-Bulman, 2004). Generally, coping repertoire of the individual are more likely to increase after facing with any traumatic event (Aldwin & Sutton, 1998), and play as an integral role in growth outcomes (Smith & Cook, 2004). The effects of traumatic experiences on individuals may be positive, negative or the mixture of positive and negative depending on the coping styles of the individuals (Jang, 2006). Individuals may become aware of own strengths not discovered before (Janoff-Bulman, 2004) using coping strategies. Apart from recognizing strengths, Sheikh (2004) highlighted that coping serve as a behavioral link in between the environmental, and personal variables, and related outcomes. This behavioral link may be seen in individuals' short, and long term goals, and behaviors.

For instance, Aldwin and Sutton (1998) stated that increment in coping skills includes differentiation of long term, and short term goals of the individuals. The effect of types of coping is established in the literature. The problem focused coping prior to bone marrow transplantation in cancer patients was significantly and positively related with growth outcomes (Widows, et al., 2005). While avoidance coping strategies are more likely to be related with poorer outcomes (Carver, 1998), using positive coping (Ho et al., 2004), cognitive coping (Schaefer & Moos, 1998), emotion focused coping, and problem-focused coping (Linley & Joseph, 2004) minimize the negative part of the events.

While researchers examine the effect of types of coping on PTG, they try to identify which kind of coping style is the most appropriate one, and how is the power of coping apart from other factors. At first, perceived distress was decreased by means of individual's (with high growth scores) engagement of adaptive coping strategies (Park & Helgeson, 2006). Secondly, Bellizzi and Blank (2006) demonstrated that after removing the effect of socio-demographic variables, personality variables (hope, and optimism), temporal factors (time passed since diagnosis, current age), type of cancer (localized, and regional), primary treatment, emotional impact (intensity), and adaptive coping were predicted the growth in relationship with others (ß= .39, p.<.001), new possibilities with life (ß= .44, p.<.001), and appreciation of life (ß= .43, p.<.001) in patients with breast cancer (Bellizzi & Blank, 2006).

1.7.2 Rumination

Amount, content, and quality of cognitive processing, and their relationships

with PTG is investigated in a number of studies (such as Calhoun & Tedeschi, 2004). Mainly the function of rumination has been examined in PTG. Rumination refers to a variety of recurrent event related thinking (Calhoun et al., 2000; Michael & Snyder, 2005) or a kind of avoidance to contemplate emotionally painful processes (Weiss, 2004a). Highly stressful events generate growth as these events enhance repetitive intrusions of thoughts (Nolen-Hoeksema & Davis, 2004; Tedeschi & Calhoun, 2004). Besides, the content of rumination is also important. PTG is predicted on constructive rumination (Weiss, 2004a) lacking the exclusive negative content (Bellizzi, 2004; Calhoun et al., 2000; Calhoun & Tedeschi, 1998a). Tedeschi and Calhoun (2003) highlight that rumination including depressive content (i.e. self-punitive thoughts) is significantly different from rumination related with PTG. According to them, rumination related with PTG should include themes like detecting discrepancies from previous experiences, comparing strange themes, considering expectancies from future, and goal attainment, detecting unattained goals, and lacking of fit between schemas, and events.

Rumination in PTG is assessed by using several items from a variety of instruments (Calhoun et al., 2003). These items reflect both deliberate and intrusive thinking. Overall, the Impact of Event Scale-R (IES-R) is used in order to assess intrusive thinking (Sanavio, 1998; Zilberg, Weiss, Horowitz, 1982) since it consists of two factors namely intrusion, and avoidance (Baumert, Simon, Gündel, Schmitt, & Ladwig, 2004; Weiss & Marmar, 1997). This scale is also appropriate for the assessment of avoidance which is the other part of rumination. In a research, PTG, and intrusion ($\underline{r}$ =.47), and avoidance ($\underline{r}$ =.45) were significantly correlated over two months; PTG, and intrusion ($\underline{r}$ =.45) were significantly correlated when the time interval increased over

four months (Snape, 1997).

The function of rumination on PTG has been criticized in a variety of studies. The positive correlation was established between stress related growth, and IES (r =.31, p <.001; Park et al., 1996). However, bereavement related rumination decreased the psychological well being scores of the individuals such as positive affect (r =-.28, p <.001; Michael & Snyder, 2005). Individuals' PTG reactions may differ in terms of time passed since trauma. For instance, finding benefits in the death was negatively related with rumination for individuals within the first year but was positively related with rumination after the first year (Michael & Snyder, 2005).

1.7.3 Religious Participation, and Religious Beliefs

"Individual's level of religious participation", and "quest orientation to religious beliefs" are additional parts of cognitive processing in PTG. While PTG occur, increment in the involvement of existential, spiritual, and religious matter are most likely to seen (Calhoun & Tedeschi, 1998b) since basic assumptive world of the individual is affected by the traumatic events (Shaw, Joseph, Linley, 2005). For instance, Milam (2004) found significant contribution of religiosity on PTG among HIV/AIDS patients (ß= .16, p <.001). However, the types of religion may affect either increment or decrement in religiosity. For example, Milam (2004) compare the Hindu's, Buddhist's, and Christian's religion theodicy. He mentions that Hindus accept stressful events as occurred in the previous lives. Buddhists have a tendency to remove attachments leading to trauma. When looking at the Christians, they may use trauma as prove their faith in God, and may feel the eye of God on them (Calhoun & Tedeschi, 2001).

As for religious participation, growth may lead to changes in religiousness which is obviously seen in the increment in "religious participation" (Park et al., 1996; Shaw et al., 2005). According to Tedeschi and Calhoun (1996), religious participation impinges on developing particularly spiritual growth. Conversely, growth may be affected by the increment in religiousness (Milam et al., 2004; Shaw et al., 2005). People reporting continuous religious affiliation had higher scores of PTG than people report no religious affiliation (Laufer & Solomon, 2006; Jang, 2006).

Qualitative studies establish that "religious beliefs" could serve as catalyst in the process of PTG (Shaw et al., 2005). For instance, Siegel and Schrimshaw (2000) found greater religious belief among HIV/AIDS patients. Besides, Calhoun et al. (2000) conducted a study with 54 students experienced a major traumatic event within past 3 years. The results yielded that the greater openness to religious change, the greater the degree of posttraumatic growth. Consequently, it is expected to see changes in the religious beliefs after the traumatic experiences.

1.8 PTG Samples Suffering From a Variety of Life Crises

Despite divorce, people rarely choose to face with life crises (Schaefer & Moos, 1998). Tedeschi and Calhoun (2003) define these life crises as a "catalysts" for PTG (p.15). Tedeschi and Calhoun (2004) cite various negative traumatic events, such as bereavement, rheumatoid arthritis, sexual assault, sexual abuse, combat, fires, cancer, and heart attacks that lead to PTG posttraumatic growth. The high levels of growth were accounted for by individuals dealing with numerous distressing events such as floods (Hofmann, 2006), bombing (Maercker & Herrle, 2003), motor vehicle accidents (Rabe

et al., 2006), road traffic accidents (Salter & Stallard, 2004), and loss of the loved one (Davis & McKearney, 2003; Harvey, Barnett, & Overstreet, 2004; Polatinsky & Esprey, 2000; Wheeler, 2001). There have been evidences of PTG among emergency ambulance personnel (Shakespeare-Finch et al., 2003), and former refugees (Powel et al., 2003) as well. Furthermore, bereaved individuals develop new personal strengths, feel emotionally stronger, and evaluate the life as full of purpose after the loss of the loved one (Schaefer & Moos, 1998). Likewise people have a tendency to increase personal meaningless of life by writing or thinking the event (Davis & McKearney, 2003). PTG responses of the individuals have sometimes compared according to the types of traumatic experiences. For instance, the tornado survivors reported the highest scores in perceived benefits after trauma than survivors of mass killing, and survivors of plane crash (Mc Millen, et al., 1997).

1.8.1 PTG in Patients with Acute or Chronic illnesses

PTG is widely investigated on the individuals' experiencing acute, and chronic illnesses, since both acute, and chronic illnesses include ongoing, and intensive medical intervention. Therefore, they are accepted as a complex trauma (Courtois, 2004). HIV/AIDS patients (Milam, 2006; Siegel & Schrimshaw, 2000), and their caregivers (Cadell et al., 2003; Cadell, 2003), cancer patients (Antoni et al., 2001; Baider & De-Nour, 2000; Weiss, 2004b) especially breast cancer patients (Bellizzi & Blank, 2006; Carver & Antoni, 2004), sudden blindness, paraplegics (Boerum, 1998), bone marrow transplantation patients (Schaefer & Moos, 1998), MS patients (Pakenham, 2005), psoriasis (a skin problem) patients (Fortune et al., 2005), and heart attack patients

(Sheikh, 2004) have a tendency to see illness as a source of growth.

Even though diagnosis, and treatment is distressing (Antoni et al., 2001; Carver & Antoni, 2004), cancer patients may experience the trauma in a positive way such as positive attitude toward themselves, and enrichment in terms of personal, and social resources (Schaefer & Moos, 1998), spiritual changes (Cordova et al., 2001), appreciation in life (Antoni et al., 2001; Cordova et al., 2001), shifting priorities, and positive affect (Antoni et al., 2001). Likewise, women with breast cancer, men with testicular cancer (Schaefer & Moos, 1998), and women suffering from HIV reported more PTG outcomes and positive changes in their lives than men (Milam, 2006) after the diagnosis.

1.8.1.1 Patients Suffering from Heart Disease: PTG Reactions Due to Heart Disease

Today, cardiovascular diseases remain as the most frequently cited disorder causing death of the individuals in the USA (Walton, Schneider, Salerno & Nidich, 2005), and Turkey (Arat, Gülel, & Sabah, 2005). Cardiovascular problems have been already increased in recent years (Stewart, Kennard, Waller, & Fixler, 1994), and these problems are accepted as a kind of terminal illnesses (Paul & Sneed, 2004).

Myocardial infarction (MI) is one of the acute coronary syndrome occur as a result of the development of acute myocardial ischemia (Tokgözoğlu, 2004). The term *myocardial infarction* is derived from *myocardium* (the heart muscle), and *infarction* (tissue death due to oxygen starvation). In other words, the resulting oxygen shortage causes damage, and potential death of heart tissue (Van de Werf et al., 2003). Acute myocardial infarction (AMI), and MI terms may be used interchangeably in the

literature. Both of them defined as a restriction or the interruption of blood supply to the part of heart (Balbay, 2004). The three types of MI are mentioned in the literature: having ST segment elevation, not having ST segment elevation (Tokgözoğlu, 2004), and unstable angina (Balbay, 2004). The types of MI can be differentiated with cardiac enzymes (Tokgözoğlu, 2004; Van de Werf et al., 2003), electrocardiography measures (ECG) (Van de Werf et al., 2003), and ischemic type chest pain (Çengel & Tavil, 2004; Van de Werf et al., 2003). The diagnosis of AMI is set via breast pain, differences in electrocardiography, and increment in plasma enzyme level (e.g., keratin kinase) (Arat et al., 2005). The treatment of MI includes medication, angiography, percutaneous transluminal coronary angioplasty (PTCA), and bypass grafting. Also, lifestyle changes including to pay attention to dietary, make sports, weight loss, and not consumption of alcohol or cigarette are important factors affecting the prognosis of MI (Paul & Sneed, 2004).

Risk factors leading heart failure have been explained in various studies. Having low social support and psychosocial stressors significantly contributes to heart failure (Allan & Scheidt, 2006; Uchino, Uno, Holt-Lunstad, & Flinders, 1999; Walton et al., 2005). Fear having another attack after the first one seems to be a psychosocial stressor. Feeling of hostility, anxiety, and anger are also significantly related with heart failure (Allan & Scheidt, 2006). Besides, age significantly increased the risk of cardiological diseases (Uchino, Holt-Lunstad, Bloor, Campo, 2005). Its effect on some cardiological measures was also established (such as blood pressure) (Uchino et al., 1999). The gender effect on heart failure has been also investigated. The prognosis of women with MI patients is worse than men (Tokgözoğlu, 2004). Old age, cigarette smoking among men,

and hypertension among women was found as risk factors to the death from AMI (Arat et al., 2005).

MI may affect the psychological well being of the individuals as well. In terms of negative outcomes, the individuals with either acute or chronic cardiac illness had higher scores on depression than healthy controls (Allan & Scheidt, 2006; Holahan, Holahan, Moos, & Brennan, 1995). In turn, depression significantly increases the morbidity, and mortality of the MI patients (Fauerbach, Bush, Thombs, McCann, Fogel, & Ziegelstein, 2005). However, social support, and adaptive coping styles were found as predictors of fewer depressive symptoms in cardiac patients (Holahan et al., 1995). Consequently, these factors can be accepted as having a protective value from depression. Women with cardiac problems were more vulnerable to show behavioral aspects of depressive symptoms (such as external explanation of distress), and more closely related with poor adjustment after disease (Holahan et al., 1995).

Apart from depression, and heart failure relationship, a small number of studies have documented PTG among cardiac patients. Firstly known study related with PTG in the heart attack survivors was conducted with Affleck, Tennen, Croog, and Levine, (1987). They found that when the patients showed perceived benefit reactions within 7 weeks after the first attack, re-experiencing another attack or death rate during the 8 years of study was significantly decreased. Benefits reporting after 7 weeks or 8 years of the post attack were found as similar. According to them, the changes in life philosophies, and religious views emerged to increase slightly over time.

Secondly, Sheikh (2004) examined the factors related with the PTG among the heart disease patients. She examined the moderator role of coping in between personal,

and environmental factors, and PTG. She found that problem focused coping mediated the relationship between extraversion, and PTG. On the other hand, problem focused coping did not mediate the relationship between social support, and PTG scores of the heart disease patients.

Apart from patients, heart complications affect the whole family, especially the spouses of patients. Stress experienced by an individual may have an extension in the family (Hobfoll & Spielberger, 1992). Delon (2006) dreams a picture of how spouses of the patients manage life during the crises period:

> "The early morning visitor, alone in the waiting room of a coronary care unit (CCU), is a familiar sight to most health care professionals. The visitor, frequently a spouse, appears to have kept vigil, for hours, on the other side of a door that separates him or her from the patient. In most cases, this door will remain closed to the spouse until visiting time, hours after he or she has arrived. While the patient is ministered to by a seemingly endless stream of medical professionals, the spouse waits. Occasionally, a doctor or nurse will emerge to ask a question or update the patient's condition, but essentially the spouse is alone, and in crisis" (p.421).

Scientists (e.g. clinical psychologists, physicians) have neglected to look at the other side that is family. How the family deals with cardiac failure of the father/mother staying in the hospital should take an attention for the family members. Systems theory particularly assumes that changes in the only one family member affect the family system as a whole. Delon (2006) states equilibrium of the marriage can be changed via the onset of the cardiac illness. Therefore, psychologists should have a look at the all members in the family whose role is chiefly important during this transition period.

Delon (2006) highlights that if spouses of the cardiac patients use effective coping skills, she/he can make contribution to the relief of the patient during the recovery period. According to observations in the hospital, spouses are commonly responsible for managing the treatment plan of patients (e.g., paying attention to plan dietary, and sports, taking medicine, and checking the date of hospital routine controls), and even taking the medical decisions if necessary. In this study, not only the MI patients, but also their spouses are going to be assessed in order to understand how patients at the one hand, and spouses at the other hand experience this transition period.

1.9 PTG Studies Conducted With Turkish Samples

Calhoun and Tedeschi (2004) highlight that socio-cultural factors affect the PTG. Consequently, PTG have been investigated in a variety of countries like in United Kingdom (Oaksford, Frude, & Cuddihy, 2005), Canada (Cadell, 2003), Sarajevo (Powel, Rosner, Butollo, Tedeschi & Calhoun, 2003), Israel (Lev-Wiesel & Amir, 2003), and China (Ho, Chan, & Ho, 2004).

Recently, the role of PTG has been also questioned in Turkey. Elçi (2004) looked at the factors contributing to PTG responses of parents with autistic children. He compared the results of mothers, and fathers separately. He found that problem oriented (optimistic) coping, and social support significantly predicted the PTG responses of mothers. On the other hand, religiosity, age, years of marriage, problem oriented (optimistic) coping, and social support predicted the PTG responses of fathers.

Yıldırım (2003) examined the grief reactions of couples. She looked whether couples losing their child may develop growth reactions. She found that presence of

other children, and infants' age significantly predicted the personal growth reactions of the couples. When a child dies young, couples could possibly to show growth reactions.

Birol (2004) questioned the PTG responses of the individuals following the motor vehicle accident. This study may give reactions of Turkish people following the sudden traumatic experience. She established that while problem oriented coping, fatalistic coping, perceived threat of the event predicted the PTG responses, having social policy did not related with PTG.

Tanrıdağlı (2005) conducted a survey with people suffering from 1999 Marmara Earthquake. She established the significant contribution to the problem focused coping, and fatalistic coping on the posttraumatic growth reactions after removing the effect of pre-disaster, and disaster related variables.

Dirik (2006) conducted a study with rheumatoid arthritis patients. These patients may experience chronic stress due to their illness. She found that posttraumatic growth was negatively related to depression but it was positively associated with optimistic/seeking social support coping, problem solving coping, and perceived social support. Regression analyses yield that perceived disease severity, perceived social support, and problem-solving coping appeared to be positively related to PTG when the effect of socio-demographic variables, depression, gender, perceived disease severity, and perceived social support removed.

The previous literature findings have established important aspects in order to understand PTG phenomenon. The effect of experiencing trauma by couple, time frame of factors related PTG, degree of exposure to trauma, assessing PTG with alternative techniques (behavioral indexes, open ended questions), and comprehensive assessment

of environmental, and personal variables, perception of the event, cognitive processing are some shortcomings of PTG studies conducted in the past. Therefore, the study design is prepared, and planned in terms of considering all these shortcomings of PTG studies.

1.10 The Purpose of the Present Study

How individuals develop PTG as a result of traumatic experiences have been investigated in various studies. Individual factors, environmental factors, event related factors, and cognitive processing contribute to PTG. The main purpose of the present study is to examine the predictive role of these factors on PTG in MI (heart attack) survivors, and their spouses in the frame of Schaefer and Moos model. Consequently, variables assessing environmental resources, personal resources, perception of the event, and cognitive processing are selected in the present study to test the model empirically (see Figure 2).

Familial support, social support from friends, and significant others, perceived marital quality, child living with family (smaller than the age of 18), number of children, and post crises environment will be taken as the environmental resources. Personal resources will be assessed by age, gender, and personality traits (commitment, control, challenge, locus of control, self esteem, and depression). The perception of the event will be assessed by the time from the diagnosis MI, perceived severity of trauma, prognosis of disorder, surgery, and having other disorder. Lastly, cognitive processing will be assessed by problem focused coping, emotion focused coping, indirect coping, rumination, hypervigilance, avoidance, religious participation, and changes in religious belief. Dependent variable will be taken as PTG.

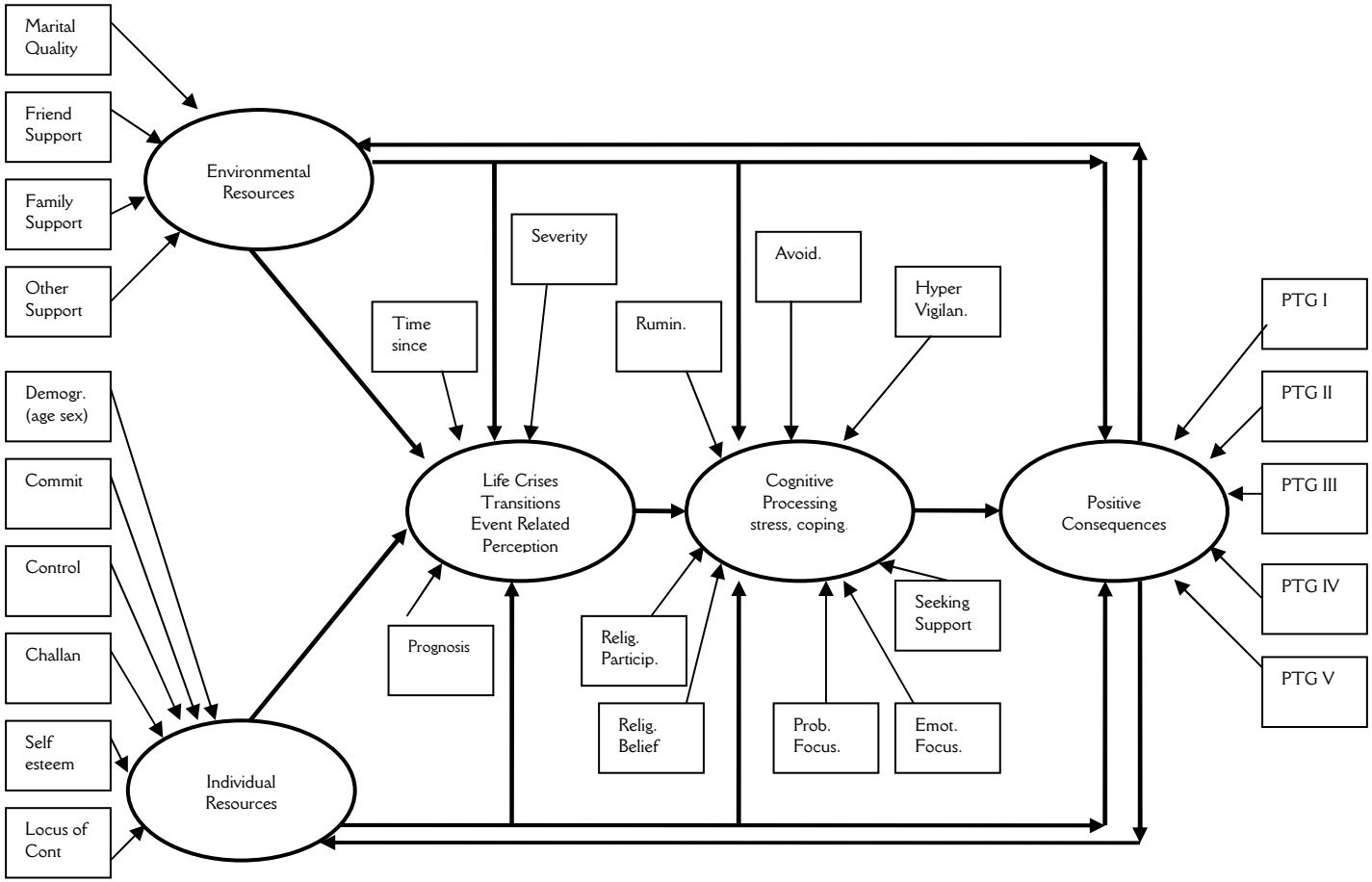

Figure 2: Schaefer and Moos model and related variables tested in the present study

Furthermore, the validity of the self report of PTG will be assessed since the term of "PTG" is criticized as having "perceptual" parts. At first, PTG will be evaluated by means of comparing PTG answered by self, and by spouses' observation. Secondly, the correlation between PTG, and behavioral responses (e.g., dietary, sport activities, not using alcohol, no smoking) will be examined. Thirdly, responds of PTGI, and open ended questions related to the effect of the hearth attack (one neutral, one positive, and one negative) will be examined.

Although the prevalence rate of heart disease has increased in recent years, few studies have focused on the psychological effect of this disease on the individuals. How MI patients are influenced from this disease remains unknown. Therefore, participants in this study are composed of the MI (heart attack) patients (whom experiencing trauma continuously). Since disease in the one family member affects the family members as a whole, the MI patient's spouses are also included in this study. Whether PTG is experienced simultaneously across couples is going to be assessed by means of the evaluation of patients' spouse's. After participants will evaluate their own growth, spouses' PTG will be also rated according to their observations by both patients, and their spouses.

Briefly, in the present study, at first MI patients will be assessed. Besides, the spouses' of MI patients will also be evaluated in order to assess the effect of spouses (husband or wife) on patients PTG reactions. Additionally, the Schaefer and Moos model will be assessed twice; for the MI patients, and their spouses.

1.11 Hypotheses of the Present Study

MI patients' and their spouses' PTG responses will be compared with other responses (for self, and for opinions about spouses' PTG; behavioral indexes, and open ended questions) for testing the existence of PTG living across couple, and the validity PTG scores or tendency to overestimate self report PTG. In the present study, SPSS will used to test 1st to 5th hypothesis. Paired sample t tests, and correlations will be conducted for testing these hypotheses.

1) When comparing the MI patients', and the spouses' PTG, the MI patients' would significantly have higher PTG scores than the spouses' after controlling the effect of gender.

2) When comparing the MI patients' PTG scores rated by themselves, and the MI patients' PTG score observed by their spouses, scores would not significantly differ from one another after controlling the effect of gender.

3) When comparing the spouses' PTG rated by themselves, and the spouses' PTG score observed by the MI patient, scores would not significantly differ from one another after controlling the effect of gender.

4) After controlling the effect of gender, the MI patients/ the spouses reporting higher behavior change (dietary, sports, not alcohol, no smoking) would be significantly have higher PTG scores than the MI patients/the spouses reporting lower behavior change.

5) The individuals who have optimistic opinion would significantly show higher scores on the three open ended questions assessing the consequences of the MI than the others (individuals with negative, and mixture of positive and negative opinion).

The structural equation model is used to test the following hypothesis all of which will be tested twice: as for the patients, and their spouses. Five latent variables or constructs (environmental resources, personal resources, and the perception of the event, coping, and cognitive processing) are treated as exogenous variables. The construct PTG is treated as an outcome variable. It is hypothesized that the perception of the event, environmental resources, and personal resources combine to influence PTG. Particularly, in the sample of heart disease survivors, and their spouses;

6) Environmental and individual resources would determine the effect of the characteristics of an event, and PTG during stressful transition periods.

7) The perception of the event would determine cognitive processing and coping.

8) Cognitive processing and coping would determine the posttraumatic growth reactions.

9) The relationship between both the environmental, and individual resources, and PTG would be affected by the perception of the event, cognitive processing and coping.

CHAPTER II

METHOD

2.1. Participants

Totally, 288 subjects participated in the present study. Participants were MI patients (N=151), and their spouses (N=137).

The MI patients were composed of 132 men (87.4%), and 19 women (12.6%). The mean age of the patients was 55.96 (SD = 10.56, Minimum 27- Maximum 80). In terms of education level, 6% of them (N=9) were literate, 43.7% of them (N=66) were primary school graduate, 9.9% of them (N=15) were secondary school graduate, 20.5% of them (N=31) were high school graduate, and 19.9% of them (N=30) were university graduate. Socio-demographic characteristics of the MI patients are presented in Table 1.

When looking at the illness related variables, the mean of time passed since diagnosis was 34.20 months (SD = 43.12). While the majority of the patients did not suffered from more than one heart attack (N=131, 86.7%), some patients suffered from two or more heart attacks (N=20, 13.3%).

Table 1 Socio-demographic characteristics of the MI patients

Variable	% (n)	Mean (SD)	Range
Gender			
Male	87.4 (132)		
Female	12.6 (19)		
Age		55.96 (10.56)	53
Employment Status			
Retired	44.4 (67)		
Self-employed	10.6 (16)		
Housewife	9.9 (15)		
Official	9.3 (14)		
Worker	7.3 (11)		
Farmer	4.0 (6)		
Teacher	6.0 (9)		
Engineer	2.0 (3)		
Tradesmen	3.3 (5)		
Doctor	0.7 (1)		
Driver	2.6 (4)		
Family income level (monthly)		1058.2 (633.2)	3680
Education Level			
Literate	6.0 (9)		
Primary School	43.7 (66)		
Secondary School	9.9 (15)		
High School	20.5 (31)		
University	19.9 (30)		
Living place			
Village	14.6 (22)		
Town	9.9 (15)		
City (suburb)	2.6 (4)		
City (center)	43.0 (65)		
Metropol (suburb)	10.6 (16)		
Metropol (center)	19.2 (29)		
Having social security entitlement			
Yes	96 (145)		
No	4.0 (6)		
Time passed since diagnosis (monthly)		34.20 (43.12)	206.83
Reoccurrence of MI			
One MI attack	86.7 (131)		
Two MI attacks	9.9 (15)		
Three MI attacks	2.0 (3)		
Four MI attacks	1.3 (2)		

The level of the surgery was ordered by three cardiologists according to leading difficulty in patients. The majority of patients had a surgery history (N=119, 79%) respectively angiography (N=39, 26%), both angiography plus percutaneous transluminal coronary angioplasty (PTCA) (N=33, 22%), bypass grafting (N=22, 15%), angiography plus PTCA, and bypass grafting (N=17, 11%). While 43.7% of patients did not take medicine (N=66), 56.3% of them took medicine (N=85). All participants had hospital admission due to heart attack, and mean length of admission was 15.66 day (SD = 19.19). Majority of the patients had social entitlement (N=145, 96%).

The spouses of the MI patients were composed of 121 women (88.3%), and 16 men (11.7%). The mean age of the spouses was 52.9 patients (SD = 11.03, Minimum 28- Maximum 80). Few patients' spouses (N=14) did not want to participate in this study. In terms of education level, 14.6 % of them (N=20) were literate, 48.2% of them (N=66) were primary school graduate, 10.9 % of them (N=15) were secondary school graduate, 18.2% of them (N=25) were high school graduate, 7.3% of them (N=10) were university graduate, and 0.7% of them (N=1) were doctorate graduate. Socio-demographic characteristics of participants are presented in the Table 2.

2.2 Measures

The MI patients, and their spouses were administered a battery of self report measures consisting of the Post Traumatic Growth Inventory, the Beck Depression Inventory, the Impact of Event Scale Revised, Religious Participation, the Ways of Coping Scale, the Multidimensional Scale of Perceived Social Support, the Psychological Hardiness Scale, the Locus of Control Scale, the Rosenberg Self Esteem

Scale, and the Demographic Information Form. The order of the administration of the scales in the battery has been randomly determined.

Table 2 Socio-demographic characteristics of the spouses of the MI patients

Variable	% (n)	Mean (SD)	Range
Gender			
Male	11.7 (16)		
Female	88.3 (121)		
Age		52.1 (11.04)	52
Employment Status			
Housewife	62.8 (86)		
Retired	19.0 (26)		
Self-employed	5.1 (7)		
Official	2.2 (3)		
Worker	2.2 (3)		
Farmer	3.6 (5)		
Teacher	2.2 (3)		
Tradesmen	0.7 (1)		
Nurse	1.5 (2)		
Family income level (monthly)		1065.1 (632.02)	3700
Education Level			
Literate	14.6 (20)		
Primary School	48.2 (66)		
Secondary School	10.9 (15)		
High School	18.2 (25)		
University	7.3 (10)		
Doctorate	0.7 (1)		
Living place			
Village	18.2 (25)		
Town	8.8 (12)		
City (suburb)	3.6 (5)		
City (center)	38.7 (53)		
Metropol (suburb)	5.1 (7)		
Metropol (center)	25.5 (35)		
Having social security entitlement			
Yes	810 (111)		
No	19.0 (26)		

2.2.1 Posttraumatic Growth Inventory

PTGI is developed by Tedeschi and Calhoun (1996) in order to assess positive changes after the traumatic experiences of the individuals. It consists of 21 items yielding a total score, and five subscale scores in improved relationship (7 items; 9, 6, 8, 15, 16, 20, 21), new possibilities for one's life (5 items; 7, 3, 11, 17, 14), greater appreciation of life (3 items; 13, 1, 2), greater sense of personal strength (4 items; 12, 10, 4, 19), and spiritual development (2 items; 18, and 5 items). The five factor solution of the scale explained 60% of variance (Cohen et al., 1998a). Additionally, the three subscales of PTGI were tested in another study namely relationship with other, finding new possibilities, and appreciation of life (Bellizzi & Blank, 2006). These three factors named as changes in self/positive life attitude, philosophy of life, and relating to others (Powel et al., 2003). Ho, Chan and Ho (2004) found 4 factor solutions available in Chinese participants suffering from cancer namely self, interpersonal, life orientation, and spiritual changes.

In Calhoun and his colleagues (2000) study, internal consistency was .90, and test-re-test reliability was found as .71 over 2 month interval. According to convergent validity, correlation between the total PTGI, and open ended questions of stress related growth was found positive, and moderate (r =.39) (Weinrib et al., 2006). Spiritual growth, and essay questions was also positive, and moderate (r =.41) (Weinrib et al., 2006).

PTG has been adapted, and used firstly in Turkish literature in a study which investigated the predictive values of social support, coping styles, and stress level in

PTG among parents with autistic children (Elçi, 2004). The Cronbach's alpha of PTGI was .88 (Elçi, 2004). Elçi found the first item with extremely low item total correlation than he omitted this item from the analyses. The revision of the Turkish version of the scale was made by Dirik (2006) and this version was used in the present study. She found three factor solution in her study namely changes in relationship with others (items 16, 15, 21, 6, 20, 9, 8; Variance explained 44.31%), changes in philosophy of life (items 7, 3, 14, 17, 11; Variance explained, 8,54%), changes in self perception (items 18, 4, 19, 13, 2, 12, 1, 5, 10; Variance explained 6.17%) when administered this scale to a group rheumatoid arthritis patients.

In the present study, a predictable factor structure of the scale has not been obtained as in the Polatinsky and Esprey's study (2000). When forcing items into three to five factors such as Dirik's (2006) and Ho et al., (2004) studies, items were not properly loaded under the factors and explained variance by the factors was getting decreased below the acceptable ranges. As discussed in the literature, the instability in the factor structure of the scale might be due to participants, types of the experienced crises, and the time frame for growth assessment (Cohen et al., 1998a)

PTGI is applied each participants (both patients, and spouses) at twice. In the patient form, firstly MI patients are rated their own PTG due to suffering from this disease. Secondly, patients are asked to rate spouses' PTG according to patients' observations. In the spouses form, firstly the spouses of the MI patients are rated their own PTG due to the disease of his/her spouse. Secondly the spouses are rated spouses' (MI patients) PTG scores according to own observations. Likewise assessed in Weiss

(2004a), the instruction of the present study was adapted as “your heart disease” in the patient questionnaire, and “your spouse’s heart disease” in the spouse questionnaire.

In the present study, the internal consistency of the scale was found as .95 in patients form, and .94 in spouses form. Corrected item total correlations varied from .56 to .78 in patients form, and .53 to .75 in spouses form. When the factor analysis has been conducted to the data, a predictable factor structure of the scale has not been obtained as in the Polatinsky and Esprey’s study (2000). When forcing items into three to five factors such as Dirik’s (2006) and Ho et al., (2004) studies, items were not properly loaded under the factors and explained variance by the factors was getting decreased below the acceptable ranges. As discussed in the literature, the instability in the factor structure of the scale might be due to participants, types of the experienced crises, and the time frame for growth assessment (Cohen et al., 1998a). Therefore, the five factor model of PTG (derived by the developer of this scale) was decided to use in further analysis, including in improved relationship (7 items; 9, 6, 8, 15, 16, 20, 21) (internal consistency was .91 in patients, and .78 in spouses), new possibilities for one’s life (5 items; 7, 3, 11, 17, 14) (internal consistency was .84 in both patients, and in spouses), greater appreciation of life (3 items; 13, 1, 2) (internal consistency was .82 in patients, and .76 in spouses), greater sense of personal strength (4 items; 12, 10, 4, 19) (internal consistency was .78 in patients, and .82 in spouses), and spiritual development (2 items; 18, and 5 items) (internal consistency was .73 in patients, and .59 in spouses).

2.2.2 Beck Depression Inventory (BDI)

At first, Beck, Ward, Mendelson, Mock and Erbaugh developed the inventory in

1961. Then, in 1978, Beck, Rush, Shaw and Emery developed the second form of this inventory which was used in this study also. This scale is a self-report rating scale consisting of 21 items, and measuring emotional, motivational, and cognitive symptoms of depression. The subjects are asked to complete the questionnaire by considering their last week. Each item contains four statement representing varying levels of depressive symptoms. Each item scored from 0 to 3, and the total score ranges from "0" to "63". Higher scores in the scale indicate the greater severity of depression. Scores range between "0 to 9" indicate 'no depression', "10 to 18" indicate 'mild depression', "19 to 25" indicate 'moderate depression', and "26 and above" are considered as 'severe depression' (Gilbert & Reynolds, 1990). In the original form of the BDI, the criterion validity was found .96 when considering clinicians' evaluations (Savaşır & Şahin, 1997). The original form internal consistency was ranged from .73 to .95 (Savaşır & Şahin, 1997), and the split half reliability was .86.

BDI had been translated into Turkish, and used in various studies in Turkey (Aydın & Demir, 1988; Hisli, 1988; Tegin, 1980). Hisli (1988) adapted the second form of BDI, and found split half coefficient as .74 when applying this scale to 259 university students. She compared BDI, and Minnesota Multiphasic Personality Inventory's Depression subscale in order to obtain concurrent validity. She found the concurrent validity .63 in psychiatric sample, and .50 in student sample. In the present study, the BDI adapted by Hisli was used. In the present study, the internal consistency of the scale was found as .83 in patients form, and .81 in spouses form. The corrected item total correlations varied from .23 to .50 in patients form, and .21 to .55 in spouses form.

2.2.3 Impact of Event Scale-Revised

First form of Impact of Event Scale (IES), developed by Horowitz in 1979, is a well validated 15 item measure of intrusive ideation, and avoidance (Horowitz, Wilner, & Alvarez, 1979). In literature, this scale was used both for the purpose of assessing cancer (Cordova et al., 2001), and cardiac problems (Baumert et al., 2004) related stress reactions, and rumination (Calhoun et al., 2000).

Weiss and Marmar (1997) developed the revised form of this scale for covering the hypervigilance dimension of the PTSD according to DSM III diagnostic criteria. The IES-R has 21 items, and three dimension namely intrusion (8 items), avoidance (8 items), and hypervigilance (6 items). Hypervigilance symptom includes irritability, acting out anger, concentration difficulty, dissociative intrusion (re-experiencing), and tension (Kocabaşoğlu & Özdemir, 2005). The intrusive symptoms of IES-R consist of nightmares, intrusive thoughts, images or feelings (Weiss & Marmar, 1997). IES-R is sensitive measure to assess change over time (Weiss & Marmar, 1997). When testing the psychometric properties among the patients with cardiological problems, Baumert et al (2004) found obtained α =0.80 for intrusion, α =0.66 for hyperarousal, and α =0.81 for avoidance subscales.

Turkish standardization of the IES-R was conducted by both Işıklı (2006), and Çorapçıoğlu, Yargıç, Geyran, and Kocabaşoğlu (2006). In this study IES-R adapted to Turkish by Işıklı (2006) are used. He adapted this questionnaire with the group of individuals showing traumatic symptoms. Additionally, the “event” terms are adapted as “your disease” in MI patient form, and as “your spouse’s disease” in the spouse form.

Işıklı (2006) tested the psychometric properties of IES-R. Factor analyses yielded a similar factor solution to the original form except three items (item 5- not the avoidance factor but to intrusion factor -, item 7 –not to avoidance factor but to hypervigilance factor -and item 9-not the intrusion factor but to hypervigilance factor -). Concurrent validity of IES-R scale was found that correlation between the scale, and the Brief Symptom Inventory was .72; and between the scale, and both BDI and Beck Anxiety Inventory was .60. The Cronbach's Alpha was found .93 for the total scale, and .90 for hypervigilance, and .83 for intrusion, and .82 for avoidance sub scales. These scores showed that this scale is sensitive measure for evaluating the impact of event.

In the present study, the internal consistency of the scale was found as .89 in patients form, and .90 in spouses form. The corrected item total correlations varied from .23 to .50 in patients form, and .14 to .66 in spouses form. The three factor model of IES-R (derived by the developer of this scale) was used including in rumination (8 items; 1, 2, 3, 6, 9, 14, 16, 20; Cronbach's alpha was .86 in patients, and .88 in spouses), avoidance (8 items; 5, 7, 8, 11, 12, 13, 17, 22; Cronbach's alpha was .78 in both patients, and .72 in spouses), hypervigilance (6 items; 4, 10, 15, 18, 19, 21; Cronbach's alpha was .82 both in patients, and in spouses).

2.2. 4 Religious Participation, and Religious Belief Questionnaire

Religious participation, another dimension of cognitive processing, would be assessed by four questions some of them were asked by Wuthnow (1994; cited in Calhoun et al. 2000). "Whether the respondent is currently attending religious services", "How often they attend religious services?", and "How important religion is in the lives

of the individuals are questions assessing religious participation. In Calhoun et al. (2000) study, Cronbach's alpha for these three items were found .67. In this study, some modifications were made except for the second question. "How often respondent was attending religious services before the traumatic event?", "How often they attend religious services currently?", and "How is the belief of God before the traumatic event?", and "How is the belief of God currently?" are going to asked for the participants in order to look at the degree of change before, and after the traumatic event. First two questions are taken as assessing religious participation, and the last two questions are taken as assessing religious belief.

2.2.5 The Ways of Coping Inventory (WCI)

The WCI was developed by Folkman and Lazarus (1980), and later revised by Folkman and Lazarus (1985). This scale consists of 74 items, and is scored on a 4-point Likert type scale from "not used" (0) to "used a great deal" (3). The scale aims to measure the problem-focused, and the emotion-focused types of coping. The original scale is composed of two subscales; problem focused, and emotion focused coping. Problem-focused coping consists of two subscales: confront coping, and planful problem-solving. Emotion-focused coping have six subscales: distancing, self-controlling, and seeking social support, accepting responsibility, escape/avoidance, and positive reappraisal (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

The adaptation of the scale into Turkish was made by Siva (1991). The internal consistency of whole scale was high (Cronbach's alpha= .91). Siva found eight factors in the factor analysis, and named differently for the original scales such as planful

problem solving, escape/avoidance, emotional control, growth, fatalistic approach, helplessness, self-blame, and seeking refuge in supernatural forces.

Moreover Karancı, Alkan, Akşit, Sucuoğlu, Balta, (1999), used the WCI with the Survivor's of Dinar earthquake. After some minor changes in the scale (e.g., deleting some items) due to the results of the pilot study, a sixty one item form of WCI was obtained. The factor analysis yielded five factors namely problem solving, fatalistic approach, helplessness approach, and seeking social support. The Cronbach's alphas of the factors were between .39, and .78.

In this experiment, the original form of WCI was used. Besides, likewise Sheikh (2004), the participants were asked to complete this scale on the basis of how they coped with the stressfulness of their experience of heart disease or their spouse's experience of heart disease. The Cronbach's alphas in the present study were found as .75 in patients' sample, and .71 in spouses' sample. Three factor structure found by Gençöz, Gençöz, and Bozo (2006) was used in the present study. The internal consistency of problem focused coping (29 items; 8, 10, 13, 15, 17, 19, 31, 35, 39, 41, 44, 45, 49, 50, 52, 58, 65, 68, 73, 74, 20, 29, 36, 46, 56, 60, 63, 66, 71) (Cronbach's alpha was .69 in patients, and .75 in spouses), emotion focused coping (22 items, 1, 4, 7, 12, 16, 18, 23, 26, 28, 32, 34, 40, 43, 53, 55, 57, 59, 61, 64, 67, 70, 72) (Cronbach's alpha was .86 in patients, and .84 in spouses), and indirect coping (12 items; 6, 11, 14, 21, 30, 38, 42, 62, 69, 2, 25, 33) (Cronbach's alpha was .67 in patients, and .69 in spouses) was found as satisfactory.

2.2.6 Multidimensional Scale of Perceived Social Support (MSPSS)

This scale was developed by Zimet et al. (1988; cited in Eker & Arkar, 1995).

The scale is a 12 item self-report instrument designed to assess the person's perception of the adequacy of social support from three sources, namely, friends, family, and significant others. The scale is scored on a 7-point Likert scale from "disagree very strongly" (1) to "agree very strongly" (7). The original scale is composed of three factors; social support from friends, family, and significant others.

The adaptation of the scale into Turkish sample was made by Eker and Arkar (1995). They tested the psychometric properties of the scale in psychiatry, surgery, and normal (patient visitors) samples. As expected, they found three factors namely, perceived social support from friends (items 3, 4, 8, 12), family (items 1, 2, 7, 10), and significant others (items 5, 6, 9, 11), and each factors consisted of 4 items. The Cronbach's alpha values were found to be between .83, and .91 in three different Turkish samples (Eker, Arkar, & Yaldız, 2000). In the present study, the Cronbach's alpha value was found satisfactory for the total scales (.88 for patients, and .85 for spouses). The three factors Cronbach's alpha was also found satisfactory; obtained from perceived social support from friends (.84 in patients, and .81 in spouses), family (.83 in patients, and .80 in spouses), and significant others (.92 in patients, and .91 in spouses).

2.2.7 Psychological Hardiness Scale (PHS)

Hardiness was assessed by generally using the Personal Views Survey III-R (PVS III-R; Hardiness Institute, Maddi & Khoshaba, 1999). This scale is a self-report instrument, and consists of 18 items referring to beliefs about oneself, and the world that concern sense of commitment, control, and challenge. Standardization of the scale into Turkish sample was made by Durak (2002). The factor analyses did not yield a

satisfactory factor structure. Consequently, Durak and Motan (2006) developed a new psychological hardiness scale consisting of 19 items. Items of this new scale had chosen from the other hardiness scales, and rated on 4 point Likert Type Scale. Factor structure yields three factor namely commitment (6 items), control (7 items), and challenge (6 items). Higher scores of this scale yield high psychological hardiness. Internal consistency of the scale was found .81. In the present study, hardiness scale developed by Durak and Motan was used. In the present study, Cronbach's alpha value was found satisfactory for the total scales (.73 for patients, and .67 for spouses). The internal consistency of the three factors were also found as acceptable; obtained from commitment (.68 in patients, and .63 in spouses), control (.41 in patients, and .50 in spouses), and challenge (.70 in patients, and .48 in spouses).

2.2.8 Locus of Control Scale (LCS)

Dağ (2002) developed a more comprehensive 5 point Likert type scale for measuring the locus of control of the Turkish sample than the Rotter (1966) developed. Unlike Rotter's (1966) scale, Dağ strongly believed that LCS has more objective response dimensions. Subsequent to collecting the various items measuring the locus of control, he selected 80 items by means of either changing the sentence structure or taking the same or similar sentences. On the other hand, item analyses results yielded that 47 items had satisfactory results. LCS scores of are ranged 47 to 235. 22 items in the LCS are reversed items.

When Dağ (2002) looking at the psychometric properties of the scale consisting of these 47 items, internal consistency was found as .92. When the scale administered to

sample one month after the fist administration, test-re-test reliability score was found as .88. Factor analyses yielded five factors namely; individual control (18 items, 12.62%, α = .82), believing chance (11 items, 8.6%, α = .79), meaningless to make an effort (10 items, 7.7%, α = .76, also include meaningless to make an effort in health dimensions), fatalism (3 items, 6.03%, α = .74), unfairness belief in the world (5 items, 5.2%, α = .61). In the present study, LCS developed by Dağ was used. In the present study, Cronbach's alpha value was found satisfactory for the total scales (.83 for patients, and .86 for spouses).

2.2.9 Rosenberg Self-Esteem Scale (RSES)

RSES consists of 10 items (5 of them reverse coded) rated on a 4 point Likert Type scale ranged from 1 (completely agree) to 4 (completely disagree) (Rosenberg, 1965). Possible scores range between 0, and 6 with lower scores signify higher self-esteem. Specifically, scores between 0 and 1 indicates high self-esteem, 2 and 4 indicates intermediate self-esteem, and 5 and 6 indicates low self-esteem. The scale was adapted to Turkish by Çuhadaroğlu (1986), and reliability and validity information was given by both Çuhadaroğlu (1986) and Tuğrul (1994). The scale showed adequate internal consistency .76 (Tuğrul, 1994). In the present study, Cronbach's alpha value was found satisfactory for the total scales (.71 for patients, and .80 for spouses).

2.2.10 Demographic Information Form

The demographic Information Form are prepared to include the demographic variables of the participants (e.g., age, education, SES, and length of marriage), marital

relationship to partner, health related behavioral life style changes after heart disease (e.g., dietary, sports, smoking attitudes), life conditions before, and after the heart disease (e.g., relationship with children, and extended family, quality of relationship between spouse, and children, problems related with work, economical problems), perception of the event (e.g., perceived severity of trauma, threat to life, time passed since heart attack, type of treatment -medication, surgery etc-, total treatment, and other health or psychological treatments), and open ended questions related with the perception of life changes after the disease.

Marital relationship among the partners was asked by three questions. “What was the relationship with your husband/wife before the heart problems?”, “What is the relationship with your husband/wife at now?”, and “What are you supposed to be your relationship with your husband/wife in the future?” Participants responded questions with 0 (not good so much) to 4 (always good) on Likert type questions. Possible scores from these three questions are ranged from 0 to 12.

In order to assess health related behavioral indicators after the heart disease (e.g., dietary, sports, loosing weight, and smoking attitudes), participants are asked to evaluate behavioral attitudes both before, and after the heart disease/spouse’s heart disease. Possible responses ranged from 0 to 4.

Life conditions before, and after the heart disease (e.g., relationship with children, and extended family, quality of relationship between spouse, and children, problems related with work, and economical problems) are also asked to the participants. Each item is assessed on a Likert type scale, ranging from 0 to 4.

As similar to prior studies (Bellizzi & Blank, 2006; Pakenham, 2005), the perceived intensity of the disease on general health is measured by two Likert type questions. First question is, "What is your perception related with your or your partner health?" Possible responses ranged from 0 (very bad) to 4 (very good). The second question "What is your degree of vital hazard related with your life or your partner's health?" Possible responses ranged from 0 (no any vital hazard) to 4 (excessive degree of vital hazard).

Additionally, the three open ended questions (one neutral, one positive, and one negative questions) are asked to the participants in order to look at consistencies of the reports of the PTGI: "Since the time of your/ your partner's experience of hearth problems, how has been the experience of event that affected you?", "Since the time of your/ your spouses experience of hearth problems, what has been the positive aspects of experience that affected you?", and "Since the time of your/ your spouses experience of health problems, what has been the negative aspects of experience of that affected you?" Content analysis was conducted to open responses of both patients, and their spouses by two psychologist's judges. Judges rated all the reports independently, and categorized into four dimension; having no opinion, optimistic opinion, negativist opinion, and fatalistic opinion. More detailed information is going to be explained in the results section.

2.3 Procedure

The potential participants were selected in various hospitals in Bolu such as Abant İzzet Baysal University Faculty of Medicine, İzzet Baysal State Hospital, and

Köroğlu State Hospital. Written informed consent was taken from either the Ethical Committee of the hospitals or directorships of the hospitals.

The patients were selected on the basis of their history of MI. Spouses were screened with no history of heart disease or other life-threatening illness (cancer, or stroke) in self, spouse or child. Potential participants were identified with the help of cardiologists, and nurses in the hospitals. They were contacted in two ways. First, after obtaining the contact numbers of the participants from the hospital's cardiology department, some of the participants were contacted by the help of a mini telephone interview, mainly explaining the reason for calling. These participants were invited to the hospital for the administration of the scales after having taken a written informed consent. Secondly, some of the participants were contacted when they came to the hospital for their routine control. After explaining the aim of the present study, potential participants were asked to participate in this study. Having taken the written informed consent, a set of measurements was given to them, and their spouses. Researcher applied these scales one by one by reading the whole items. Scale administration to one participant took approximately 1.5 - 2.5 hours. The scales were presented in a random order to each participant. In case the need for extra time was detected, the interview time was prolonged. If the patients chose to answer questionnaires by her self/him self, this was also accepted.

To examine the time effect, participants were selected without considering the time passed since diagnosis. On the other hand, patients with longer time interval between the diagnosis, and the present (3 years, and more) were asked whether they had suffered from any other traumatic experiences. Patients with any other traumatic

experiences after the cardiological problem were not included within the present study. For this purpose, three individuals (one individual passing the process of being remand prisoner, one individual losing her husband, and one individual losing her son) were not interviewed, but advised to get professional help.

When the patients were contacted via their telephone numbers obtained from the hospital cardiology services to schedule the interview time in the hospital, the lost of the MI patients (N=14) was learned. At these times, after apologizing to make them remember the loss of the loved one, the aim of this study was explained. In addition to this, in the interview, if any other neurological, mental or psychological disorder was identified in any participants, patients were not included in this study. Two participants with mental problems, two patients with neurological problems due to old age, and one patient with depression were advised to get professional help. Additionally, doctors of these patients were informed in order to start consulting with other specialists in the hospital.

Participants were informed to the results of the study after finishing the data collection and analyzing process. Debriefing was given to them related with the results of the present study in the hospitals. Their thoughts and experiences were also shared in an interactional environment. They freely expressed how their feelings and thoughts affect themselves and their family. According to the results, suggestions were given to them in order to arrange their family environment and the importance of PTG was explained to them.

CHAPTER III

RESULTS

Results are organized in three different sections. In the first section, data cleaning, descriptive statistics (e.g., mean, and standard deviation) of the variables, and correlation among the variables are presented. In the second and third sections, the findings related to hypothesis testing were presented. The second part describes the findings of the first five hypothesis of the study. The third part summarizes the findings based on the testing of the post-traumatic growth model of Schaefer and Moos.

3.1 Data Cleaning, Descriptive Statistics, and Bivariate Correlations

3.1.1 Data Cleaning

The data were examined for accuracy of data entry, missing values, fit between their distributions, and the assumptions of multivariate analysis, prior to the analysis. The z score for all variables was computed in order to improve pairwise linearity, and to reduce the extreme skewness, and kurtosis. Three cases with extremely low z scores in spouse groups were found to be univariate outliers therefore these cases were deleted. When looking at multivariate outliers, one case was deleted. After extracting all of these

cases, totally 288 cases (patient, N=151, spouse, N=137) were examined for further analysis.

3.1.2 Descriptive Statistics

Descriptive statistics of the all variables included in the present study were presented separately for the patients, and their spouses in the Table 3, and Table 4.

3.1.3 Bivariate Correlations among the Variables

Bivariate correlations among the PTG scores obtained from the patients (self PTG, and perception or opinions about spouse's PTG), and their spouses (self PTG, and perception or opinions about spouse's/patient's PTG) with the other variables of interest were separately presented for patients in Table 5, and for spouses presented in Table 6. The correlations among the all variables interested in the study are presented in Appendix A.

There were four PTG scores in the present study so there was a need to clarify PTG scores in more detail. Firstly, the patients' PTG refers to what the person who had experience of trauma thinks about his/her own PTG. Secondly, the spouse's PTG score observed by the patient refers to what the person who had experienced trauma thinks about his/her spouses' PTG. Thirdly, the spouse PTG refers to what the person who's spouse had the experience of trauma thinks about his/her own PTG. Fourthly, the patient's PTG score observed by their spouses' refers to what the persons who's spouse had the experience of trauma thinks about his/her spouse's PTG.

Table 3: Means, and Standard Deviations of the Variables in MI Patient Sample

VARIABLES	Total		
	Min –Max	X	SD
Demographical Variables			
Number of Children	0 – 5	2.70	1.09
Number of children living with family (<18 age)	0 – 4	0.45	0.80
Marital Quality (before, now, after)	3 – 12	9.83	2.22
Marital Quality before	0 – 4	3.26	0.85
Marital Quality now	0 – 4	3.21	0.94
Marital Quality after (suppose to be)	0 – 4	3.32	0.91
Time Passed Since Diagnosis (month)	0.17 – 207	34.20	43.12
Perceived Threat	0 – 4	1.87	1.29
Health Status at Now (perceived prognosis)	0 – 4	2.83	0.78
Health Related Behavioral Indica. (before the disease)	0 – 20	9.27	5.49
Dietary	0 – 4	1.59	1.58
Exercising	0 – 4	1.68	1.56
Not gaining weight	0 – 4	1.58	1.57
No smoking	0 – 4	1.84	1.80
No alcohol	0 – 4	2.57	1.65
Health Related Behavioral Indica. (after the disease)	0 – 20	14.45	4.88
No smoking	0 – 4	2.90	1.33
No alcohol	0 – 4	2.35	1.40
Dietary	0 – 4	2.56	1.44
Not gaining weight	0 – 4	3.24	1.37
Exercising	0 – 4	3.40	1.19
Life Conditions Before, and After the Crises			
With marital relationship (before, and after crises)	-8 – 9	0.40	2.77
With children (before, and after crises)	-11 – 8	-0.93	2.21
With extended family members (before and after)	-4 – 4	-0.93	1.32
Economical problems (before, and after crises)	-5 – 7	0.23	1.52
Posttraumatic Growth (Patient)	0 – 105	57.64	26.11
Improved Relationship	0 – 35	19.43	10.11
New Possibilities for One's Life	0 – 25	10.97	6.84
Greater Appreciation for Life	0 – 17	10.29	4.02
Greater Sense of Personal Strength	0 – 15	11.25	5.40
Spiritual Development	0 – 10	5.70	3.30
The Spouses' PTG Score Observed by their Patient	3 – 105	59.48	24.27
Improved Relationship	0 – 35	18.62	10.03
New Possibilities for One's Life	0 – 25	10.33	7.20
Greater Appreciation for Life	0 – 17	10.86	5.72
Greater Sense of Personal Strength	0 – 15	9.53	4.66
Spiritual Development	0 – 10	5.40	.42
Impact of Event	0 – 84	32.99	16.31
Rumination	0 – 32	11.38	7.31
Avoidance	0 – 31	13.00	6.50
Hypervigilance	0 – 24	8.61	6.21
The Ways of Coping	88 – 216	152.69	19.61
Problem Focused Coping	36 – 106	69.99	11.50
Emotion Focused Coping	0 – 74	37.42	12.62
Indirect Coping	7 – 45	23.70	6.74

Table 3 *Continued*

	15 – 84	61.99	15.15
Multidimensional Social Support			
Social Support From Family	12 – 28	25.01	4.08
Social Support From Friend	4 – 28	20.08	6.22
Social Support From Significant Others	4 – 28	17.03	8.28
Psychological Hardiness	15 – 47	32.15	6.38
Commitment	3 – 15	10.34	2.53
Control	3 – 17	10.75	3.10
Challenge	0 – 18	11.08	3.39
Locus of Control	19 – 120	76.01	17.91
Self Esteem	18 – 40	30.87	5.20
Depression	0 – 32	9.40	7.03
Religious Participation, and Belief			
Religious Participation Before the Event	0 – 4	2.13	1.19
Religious Participation After the Event	0 – 4	0.89	1.24
Religious Belief Before the Event	0 – 4	3.63	0.72
Religious Belief After the Event	2 – 4	2.66	0.88

As can be seen in Table- 5, the patients' PTG scores had significant correlation with the perceived social support ($\underline{r} = .21$, $\underline{p} < .001$), and its subscales namely social support from friend ($\underline{r} = .24$, $\underline{p} < .001$), social support from significant others ($\underline{r} = .16$, p $\underline{p} < .005$); hardiness subscales namely commitment ($\underline{r} = .21$, $\underline{p} < .005$), and challenge ($\underline{r} = .23$, $\underline{p} < .001$); gender ($\underline{r} = -.19$, $\underline{p} < .005$); impact of the event scale ($\underline{r} = .28$, $\underline{p} < .001$), and its subscales rumination ($\underline{r} = .18$, $\underline{p} < .005$), avoidance ($\underline{r} = .34$, $\underline{p} < .001$), and hypervigilance ($\underline{r} = .17$, $\underline{p} < .005$); ways of coping ($\underline{r} = .32$, $\underline{p} < .001$), and its subscales namely emotion focused coping ($\underline{r} = .33$, $\underline{p} < .001$), and indirect coping ($\underline{r} = -.34$, $\underline{p} < .001$) in the MI patient group.

When looking at the spouses sample, as being demonstrated in Table- 6, PTG had significant correlation between number of children ($\underline{r} = .21$, $\underline{p} < .005$); perceived social support ($\underline{r} = .27$, $\underline{p} < .001$); hardiness ($\underline{r} = .18$, $\underline{p} < .001$), and its subscales of commitment ($\underline{r} = .21$, $\underline{p} < .005$), and challenge ($\underline{r} = .23$, $\underline{p} < .001$); impact of event scale

Table 4 Means, and Standard Deviations of the Variables in Spouses Sample

VARIABLES	Min –Max	Total X	SD
Demographical Variables			
Number of Children	0 – 5	2.70	1.09
Number of children living with family (<18 age)	0 – 4	0.45	0.80
Marital Quality (before, now, after)	1 – 12	9.48	2.61
Marital Quality before	0 – 4	3.13	0.97
Marital Quality now	0 – 4	3.18	0.98
Marital Quality after (suppose to be)	0 – 4	3.17	1.04
Time Passed Since Diagnosis (day)	2 – 2592	1364.36	2886.80
Perceived Threat of Spouse's Health	0 – 4	1.83	1.17
Health Status of Spouse's at Now (perceived prog.)	0 – 4	2.62	0.79
Health Related Behavioral Indicators (before disease)	0 – 20	11.46	4.33
Dietary	0 – 4	1.16	1.43
Exercising	0 – 4	1.48	1.41
Not gaining weight	0 – 4	2.0	1.46
No smoking	0 – 4	2.89	1.59
No alcohol	0 – 4	3.40	1.25
Health Related Behavioral Indicators (after the disease)	0 – 20	12.39	4.74
No smoking	0 – 4	2.16	1.50
No alcohol	0 – 4	1.74	1.42
Dietary	0 – 4	2.08	1.43
Not gaining weight	0 – 4	3.0	1.59
Exercising	0 – 4	3.39	1.27
Life Conditions Before, and After the Crises			
With marital relationship	-8 – 14	0.35	2.95
With children	-5 – 4	-0.07	1.78
With extended family members	-4 – 4	-0.32	1.43
Economical problems	-7 – 5	0.11	1.77
Posttraumatic Growth (Spouses)	0 – 103	54.47	28.75
Improved Relationship	0 – 35	19.77	9.14
New Possibilities for One's Life	0 – 25	10.70	6.92
Greater Appreciation for Life	0 – 20	12.88	5.28
Greater Sense of Personal Strength	0 – 15	9.83	3.83
Spiritual Development	0 – 10	6.29	3.09
The Patients' PTG Score Observed by their Spouses'	0 – 105	54.76	27.42
Improved Relationship	0 – 35	19.76	9.13
New Possibilities for One's Life	0 – 25	10.70	6.91
Greater Appreciation for Life	0 – 20	12.88	5.28
Greater Sense of Personal Strength	0 – 15	9.83	3.82
Spiritual Development	0 – 10	6.29	3.29
Impact of Event	3 – 87	34.38	16.53
Rumination	0 – 31	12.71	7.82
Avoidance	0 – 30	12.13	5.67
Hypervigilance	0 – 24	9.54	6.19
Ways of Coping	115 – 204	156.84	18.04
Problem Focused Coping	35 – 106	71.28	12.09
Emotion Focused Coping	7 – 67	38.96	11.96
Indirect Coping	4 – 41	24.17	7.04

Table 4 *Continued*

	26 – 84	62.57	13.69
Multidimensional Social Support			
Social Support From Family	13 – 28	25.01	3.89
Social Support From Friend	4 – 28	19.77	6.22
Social Support From Significant Others	4 – 28	17.85	7.72
Psychological Hardiness	15 – 47	31.02	6.01
Commitment	2 – 15	10.04	2.54
Control	0 – 17	10.75	3.28
Challenge	4 – 18	10.47	2.76
Locus of Control	15 – 120	79.38	19.49
Self Esteem	11 – 40	30.44	6.11
Depression	0 – 32	9.64	6.87
Perceived Threat for Husband's Illness	0 – 4	1.83	1.17
Perceived Health Status of Spouse at Now (perceived prog.)	0 – 4	2.62	0.79
Religious Participation, and Belief			
Religious Participation Before the Event	0 – 4	2.43	1.29
Religious Participation After the Event	0 – 4	0.78	1.13
Religious Belief Before the Event	0 – 4	3.61	0.81
Religious Belief After the Event	0 – 4	2.74	0.93

($\underline{r}$ = .39, $\underline{p}$ < .001), and their subscales rumination ($\underline{r}$ = .21, $\underline{p}$ < .005), avoidance ($\underline{r}$ = .32, $\underline{p}$ < .001), and hypervigilance ($\underline{r}$ = .23, $\underline{p}$ < .001); ways of coping ($\underline{r}$ = .36, $\underline{p}$ < .001), and its subscale of indirect coping ($\underline{r}$ = -.26, $\underline{p}$ < .001); religious participation ($\underline{r}$ = .25, $\underline{p}$ < .001), and religious belief ($\underline{r}$ = .26, $\underline{p}$ < .001) in the MI patient group.

Table 5 Pearson Correlations of PTG, and study variables in MI Patient Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
18. PTG Patient	.01	-.19*	.16*	.01	.01	.04	-.15	.11	.00	.03	.07	-.05	.09	.07	.03	-.07	.00	1	.93**
19. Impr. Rel.	.01	-.09	.11	.01	.11	-.01	-.01	-.06	.12	.01	.03	-.04	-.03	-.05	-.02	.09	-.05	.93**	1
20.Pos.Life	-.13	-.17	-.23	-.20	-.14	-.02	-.09	-.14	-.07	-.08	-.10	-.12	-.10	-.09	-.09	-.07	.04	.89**	.75**
21. App.Life	.14	.01	.20*	.21**	.22**	.20**	.05	.09	.04	.11	.02	.10	.03	.14	.08	.28**	.21**	.81**	.66**
22. S.per Str.	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.89**	.79**
23. Sp. Dev.	.04	-.01	-.09	.09	-.05	.09	.03	.04	-.01	.08	.10	-.03	.04	-.07	-.04	.21**	.24**	.77**	.67**
24. SPTG	-.02	.09	.08	.04	.00	.06	.02	.03	.08	.05	.03	-.21	-.24	-.07	-.19	.03	.06	.77**	.73**
25. SImpro	-.12	-.15	-.07	-.20	-.06	-.15	-.08	-.03	.04	.01	.00	.06	.14	-.13	.13	-.14	-.02	.60**	.59**
26. Sp.Pos.	.11	.04	.09	.20**	.02	.16*	.08	.04	.00	.05	-.04	-.23	-.24	-.05	-.25	.06	.18*	.51**	.43**
27. Sp.App.	-.04	.01	.12	.04	-.07	.04	.02	.07	.22**	-.01	.03	.03	.03	.04	.01	.06	.11	.40**	.36**
28. Sp.Stre	-.02	.05	.10	.07	-.05	.01	.09	.12	.21**	.15	.15	.00	-.03	.02	.01	.03	.05	.46**	.41**
29. Sp.Spiri.	.04	.11	.13	.06	-.05	.12	.09	.11	.23**	.06	.11	.10	.07	.05	.14	.06	.04	.49**	.42**

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
18. PTG Patient	.89**	.81**	.89**	.77**	.76**	.60**	.51**	.40**	.46**	.48**	.28**	.18*	.34**	.17*	.32**	.15	.32**
19. Impr. Rel.	0,75**	0,66**	0,79**	0,67**	0,73**	0,59**	0,43**	0,36**	0,41**	0,42**	0,25**	0,19*	0,28**	0,15	0,29**	0,11	0,30**
20.Pos.Life	1	0,66**	0,74**	0,63**	0,68**	0,53**	0,53**	0,34**	0,39**	0,43**	0,24**	0,14	0,32**	0,14	0,26**	0,11	0,25**
21. App.Life		1	0,71**	0,63**	0,60**	0,50**	0,42**	0,47**	0,40**	0,46**	0,27**	0,17*	0,32**	0,18*	0,27**	0,15	0,28**
22. S.per Str.			1	0,59**	0,63**	0,53**	0,46**	0,32**	0,42**	0,38**	0,22**	0,13	0,30**	0,12	0,33**	0,24**	0,26**
23. Sp. Dev.				1	0,66**	0,40**	0,36**	0,33**	0,36**	0,48**	0,24**	0,14	0,26**	0,18*	0,25**	0,02	0,33**
24. SPTG					1	0,56	0,49**	0,41**	0,42**	0,51**	0,30**	0,22**	0,32**	0,21**	0,37**	0,23**	0,35
25. SImpro						1	0,78**	0,64**	0,78**	0,71**	0,20*	0,16	0,22**	0,11	0,31**	0,18**	0,26
26. Sp.Pos.							1	0,61**	0,74**	0,69**	0,24	0,22**	0,18*	0,19*	0,31**	0,22**	0,26
27. Sp.App.								1	0,67**	0,71**	0,26**	0,26**	0,14	0,23**	0,17*	0,00	0,23**
28. Sp.Stre									1	0,67	0,17	0,13	0,20	0,09	0,31	0,18*	0,26**
29. Sp.Spiri.										1	0,26	0,21	0,20	0,22**	0,28	0,08	0,28

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed)

Table 5 (continued)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
18. PTG Patient	-.34**	.21**	.10	.24**	.16*	.15	.21**	-.12	.23**	.15	-.11	-.05	.07	.15	-.06	.11
19. Impr. Rel.	-.36**	.24**	.12	.28**	.17*	.11	.17*	-.11	.19*	.14	-.13	-.01	.08	.11	-.06	.09
20.Pos.Life	-.25**	.14	.04	.17	.11	.13	.15	-.07	.20**	.14	-.14	-.07	-.01	.14	-.10	.12
21. App.Life	-.28**	.16*	.08	.12	.14	.18*	.26**	-.09	.22**	.10	.00	.00	.06	.13	-.05	.03
22. S.per Str.	-.29**	.21**	.10	.22**	.17*	.26**	.29**	-.04	.31**	.05	-.03	-.15	.05	.12	-.09	.06
23. Sp. Dev.	-.27**	.13	.07	.18*	.08	-.09	.02	-.26	.05	.28	-.13	.04	.14	.20**	.14	.22**
24. SPTG	-.42**	.20**	.16*	.18*	.13	.14	.20	-.14	.23**	.05	-.07	-.04	.00	.20**	-.11	.18*
25. SImpro	-.28**	.15	.10	.10	.14	.21**	.19*	.07	.19*	-.03	.01	.02	-.06	.21**	-.08	.05
26. Sp.Pos.	-.24**	.04	.06	-.03	.07	.16	.17*	.04	.13	.00	.04	.06	-.05	.24**	-.13	.05
27. Sp.App.	-.21**	.01	.10	-.02	-.02	.01	.09	-.10	.05	.08	.00	.17*	-.14	.10	-.06	.06
28. Sp.Stre	-.19**	.06	.06	.04	.05	.22**	.20**	.09	.19	-.02	.14	.02	-.09	.27**	-.05	.01
29. Sp.Spiri.	-.17**	-.03	-.03	-.02	-.03	.01	.08	-.12	.06	.15	-.03	.15	.00	.23**	.07	.16

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 6 Pearson Correlations of PTG and study variables in the spouse group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
18. PTG Self	-.01	.02	.08	.01	-.02	.12	-.01	.07	.03	.05	-.08	.11	.04	.15	.21**	.09	.01	1	.92**
19. Impr. Rel.	.04	.00	-.14	.04	.02	-.03	.04	.00	.04	-.14	.02	-.03	-.07	.05	-.04	.02	-.15	.92**	1
20.Pos.Life	.00	.10	-.07	.03	.02	.11	.00	.10	.03	-.07	.02	-.03	-.07	.08	-.08	.01	.01	.90**	.76**
21. App.Life	.11	.08	-.02	.02	.11	.08	.11	.08	.02	-.02	.11	.15	.10	.12	.16	.10	-.11	.79**	.63**
22. S.per Str.	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.79**	.66**
23. Sp. Dev.	-.07	-.07	.06	.06	.01	.02	-.07	-.07	.06	.06	.01	-.01	.01	.03	-.07	.06	.18*	.80**	.70**
24. SPTG	.14	.11	.11	.08	-.02	.04	.14	.11	.08	.11	-.02	-.06	-.07	.00	-.07	.04	.04	.75**	.68**
25. SImpro	-.05	.00	.06	.00	.00	.00	-.05	.00	.00	.06	.00	.12	.17*	-.03	.12	-.01	-.02	.92**	.90**
26. Sp.Pos.	.14	-.03	.05	.17	-.08	.01	.14	-.03	.17*	.05	-.08	-.19*	-.16*	-.09	-.21	-.06	.06	.90**	.76**
27. Sp.App.	.00	.02	.06	.04	.01	.07	.00	.02	.04	.06	.01	-.08	-.10	-.06	-.02	.08	.13	.79**	.66**
28. Sp.Stre	.03	.04	.05	.08	.02	.05	.03	.04	.08	.05	.02	.06	.08	-.08	.12	.05	-.06	.79**	.63**
29. Sp.Spiri.	-.05	-.05	-.06	-.05	-.16*	-.02	-.05	-.05	-.05	-.06	-.16*	-.02	-.08	.02	.05	-.05	-.10	.92**	.70**

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
18. PTG Self	.92**	.90**	.79**	.79**	.80**	.75**	.92**	.90**	.79**	.79**	.80**	.40**	.30**	.40**	.30**	.36**	.27**	.27**
19. Impr. Rel.	1	.76**	.63**	.66**	.70**	.68**	.90**	.76	.66**	.63**	.70**	.30**	.22**	.36**	.20**	.31**	.26**	.25**
20.Pos.Life		1	.63**	.64**	.71**	.67**	.76**	.90**	.64**	.63**	.71**	.38**	.28**	.37**	.31**	.35**	.17*	.28**
21. App.Life			1	.57**	.52**	.57**	.63**	.63**	.57**	.95**	.52**	.37**	.29**	.31**	.33**	.28**	.30	.11
22. S.per Str.				1	.59**	.60**	.66**	.64**	.90**	.57**	.59**	.30**	.25**	.32**	.19*	.28**	.31	.18*
23. Sp. Dev.					1	.63**	.70**	.71**	.59**	.52**	.96**	.35**	.27**	.35**	.28**	.32**	.11	.35**
24. SPTG						1	.68**	.67**	.60**	.57**	.63**	.32**	.23**	.31**	.27**	.27**	.20**	.23**
25. SImpro							1	.76**	.66**	.63**	.70**	.30**	.22**	.36**	.20**	.31**	.26**	.25**
26. Sp.Pos.								1	.64**	.63**	.71**	.38**	.28**	.37**	.31**	.35**	.17**	.28**
27. Sp.App.									1	.57**	.59**	.30**	.25**	.32**	.19*	.28**	.31**	.18*
28. Sp.Stre										1	.52**	.37**	.29**	.31**	.33**	.28**	.30**	.11
29. Sp.Spiri.											1	.35**	.27**	.35**	.28**	.32**	.11	.35**

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

Table 6 (continued)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
18. PTG Self	-.38**	.27**	.18*	.22**	.19*	.18*	.31**	-.07	.19*	-.09	.00	.05	-.01	.16*	.05	.31**
19. Impr. Rel.	-.35**	.26**	.13	.24**	.19*	.12	.23**	-.08	.14	-.02	-.04	.06	.00	.11	.05	.24**
20.Pos.Life	-.27**	.23**	.10	.20**	.19*	.18*	.31**	-.09	.23**	-.05	-.08	.09	.00	.20**	-.01	.27**
21. App.Life	-.31**	.23**	.21	.17*	.16*	.24**	.27**	.11	.13	-.23**	.13	.01	-.12	.13	-.06	.23**
22. S.per Str.	-.40**	.22**	.26**	.14	.12	.26**	.37**	-.01	.23**	-.20**	.13	-.06	-.02	.04	.11	.33**
23. Sp. Dev.	-.36**	.15	.10	.10	.12	-.05	.17*	-.24**	.03	.09	-.09	.11	.11	.18*	.21	.32**
24. SPTG	-.34**	.13	.05	.08	.12	.05	.11	-.07	.10	-.04	-.13	.09	-.05	.16*	-.02	.33**
25. SImpro	-.35**	.26**	.13	.24**	.19*	.12	.23**	-.08	.14	-.02	-.04	.06	.00	.11	.05	.24**
26. Sp.Pos.	-.27**	.23**	.10	.20**	.19*	.18	.31**	-.09	.23**	-.05	-.08	.09	.00	.20	-.01	.27**
27. Sp.App.	-.40**	.22**	.26**	.14	.12	.26**	.37**	-.01	.23**	-.20	.13	-.06	-.02	.04	.11	.33**
28. Sp.Stre	-.31**	.23**	.21**	.17*	.16*	.24**	.27**	.11	.13	-.23**	.13	.01	-.12	.13	-.06	.23**
29. Sp.Spiri.	-.36**	.15	.10	.10	.12	-.05	.17*	-.24**	.03	.09	-.09	.11	.11	.18*	.21	.32**

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

3.2 Comparison of the Patients', and Their Spouses' PTG Scores

In order to test the first hypotheses of the present study, various analyses were performed. After obtaining significant correlation, repeated measures of ANCOVA for the total PTGI and repeated measures of MANCOVA for the subscales of the PTGI were conducted.

As being demonstrated in Table-5, and Table-6, the MI patients' PTG scores, and their spouses' PTG scores were highly correlated with each other ($\underline{r} = .77$, $\underline{p} < .001$). This result may suggest the existence of the PTG across the couples. Therefore, repeated measures of ANCOVA were conducted in order to test the first hypothesis.

Hypothesis I: When comparing the MI patients', and the spouses' PTG, the MI patients' would significantly have higher PTG scores than the spouses' after controlling the effect of gender.

When the MI patients' and the spouses' PTG responses were compared in order to test the existence of PTG living across couples, repeated measures of ANCOVA was conducted. The MI patients and the spouses responds were two categories of the independent variables and the PTGI scores were dependent variable. Besides gender was considered as a covariate since the MI patients were largely composed of male participants and the spouses were composed of largely female participants and previous literature findings reveal the significant effect of gender on PTG (Bellizi, 2004). According to the results, PTG scores of the MI patients and the spouses did not significantly differ from each other, $\underline{F}\ (1,134) = 1.69$, n.s.

In terms of the subscales of the PTG, MANCOVA with repeated measures were conducted. The MI patients and the spouses' responds were two categories of the independent variable, gender were set as a covariate, and five subscales of PTGI were set as the dependent variables. A Repeated Measures MANCOVA revealed that the MI patients and the spouses scores differed across the factors of PTGI; Wilks' Λ= .91. F (5,130) = 2.44,p <.05. When looking at the univariate F results, improved relationship [F = 2.20, n.s.], possibilities of life [F = 1.40, n.s.], appreciation of life [F = .84, n.s.], and spiritual development [F = .84, n.s.] did not reveal significant group difference. However, personal strength dimension showed significant group difference [F = 11.25, p <.001]. The MI patients (M = 11.41, SE = .45) had higher scores on the personal strength dimension than the spouses (M = 9.87, SE = .33).

3.3 Validity of PTG Scores of the MI Patients and Their Spouses

Consistency between the MI patients PTG ratings and the spouses' observation, consistency between the spouses PTG ratings and the MI patients' observation, consistency between the MI patients /the spouses PTG and behavioral indexes, and consistency between the MI patients /the spouses PTG and open ended questions were assessed in order to assess the validity of self report scores of the MI patients' and the spouses.

3.3.1 The MI patients PTG rated by themselves and observed by the spouses

At first, consistencies between the MI patients PTG rated by themselves and observed by the spouses were evaluated. Moderate positive correlation was obtained

between the MI patients' PTG score rated by themselves, and the MI patients' PTG score observed by the spouses' (r = .58, p < .001) that may show the congruency of the responses to self report data with significant others. This correlation may demonstrate the validity of the self-report responses when looking at the scores obtained from the significant others (husbands or wives). For the further analysis, after controlling the effect of gender, the PTG score of the MI patients reported by themselves and observed by that of the spouses were compared for testing the 2nd hypothesis.

Hypothesis 2: When comparing the MI patients' PTG scores rated by themselves, and the MI patients' PTG score observed by their spouses, scores would not significantly differ from one another after controlling the effect of gender.

When the MI patients' PTG rated by themselves and observed by the spouses' were compared in order to test the validity PTGI responses, repeated measures of ANCOVA was conducted. The MI patients' PTG scores rated by themselves and observed by the spouses were two categories of the independent variable and the PTGI scores were dependent variable. Besides, gender was considered as a covariate in order to control the effect of gender. Results revealed that when the effect of gender was controlled, the MI patients PTG (M = 64.85, SE = 3.43) rated higher scores than the spouses observed (M = 58.38, SE = 3.65), F (1,134) = 3.86, p < .05.

Besides the total PTGI scores, MANCOVA with repeated measures were conducted in order to look at the subscales of the PTGI. The MI patients' ratings and the spouses observations were two categories of an independent variable, gender was set as a covariate, and five subscales of PTGI were set as dependent variables. A Repeated

measures of MANCOVA revealed that the MI patients PTGI rated by themselves and observed by the spouses did not significantly become different across the factors of PTGI; Wilks' Λ= .97. $\underline{F}$ (5,130) = .910, n.s. The univariate F results did not show significant difference also; improved relationship [$\underline{F}$ = .29, n.s.], possibilities of life [$\underline{F}$ = .16, n.s.], appreciation of life [$\underline{F}$ = 1.35, n.s.], personal strength [$\underline{F}$ = 2.56, n.s.], and spiritual development [$\underline{F}$ = .03, n.s.] did not reveal significant group difference.

3.3.2 The spouses PTG rated by themselves and observed by the MI patients

Secondly, consistency between the spouses PTG ratings and the MI patients' observation were assessed. The spouses' PTG score rated by themselves, and the spouses' PTG score observed by the MI patients were positively correlated ($\underline{r}$ = .55, $\underline{p}$ < .001). Therefore, when looking at the scores obtained from the significant others (husbands or wives), self report of PTG may properly answered. For the further analysis, the PTG score of the spouses reported by themselves, and observed by that of the MI patients were compared for testing 3rd hypothesis.

> Hypothesis 3: When comparing the spouses' PTG rated by themselves, and the spouses' PTG score observed by the MI patient, scores would not significantly differ from one another after controlling the effect of gender.

When the spouses' PTG rated by themselves and observed by the MI patients' were compared in order to test the validity PTGI responses, Repeated Measures of ANCOVA was conducted. The spouses' PTG and the MI patients observations of the spouses' PTG were two categories of the independent variable and the PTGI scores were

dependent variable. Moreover, in order to control the effect of gender, it was considered as a covariate. Results revealed that when the effect of gender was controlled, the spouses PTG scores rated by themselves and observed by the MI patients did not significantly differ from each other, $\underline{F}$ (1,134) = .57, n.s.

Moreover, MANCOVA with repeated measures were conducted in order to look at the subscales of the PTGI. The spouses' ratings and the MI patients observations were two categories of an independent variable, gender was set as a covariate, and five subscales of PTGI were set as dependent variables. A Repeated Measures of MANCOVA revealed that the MI patients PTGI rated by themselves and observed by the spouses did not significantly become different across the factors of PTGI; Wilks' Λ= .98. $\underline{F}$ (5,130) = 2.50, n.s. Therefore, the univariate F results did not show significant difference; improved relationship [$\underline{F}$ = .02, n.s.], possibilities of life [$\underline{F}$ = .03, n.s.], appreciation of life [$\underline{F}$ = 2.49, n.s.], personal strength [$\underline{F}$ = 2.48, n.s.], and spiritual development [$\underline{F}$ = .03, n.s.] did not reveal significant group difference.

3.3.3 The Behavioral Indices of PTG

Thirdly, consistency between the MI patients /the spouses PTG and behavioral indices were evaluated according to the 4th hypothesis. Before testing this hypothesis, preliminary analyses were conducted for the data in order to compare behaviors before and after the event. For behavior indices, Likert type questions were used.

A significant positive correlation was established between the MI patients' PTG, and the total scores of behavioral indexes (dietary, sports, not gaining weight, not taking alcohol, no smoking) ($\underline{r}$ =22, $\underline{p}$ <.05). When looking at the unique effect of each

behavior, the MI patients' PTG had significant positive correlation with sport activities (r =.16, p <.05), not smoking cigarette (r =.16, p <.05), and not drinking alcohol (r =25, p <.001). These results may demonstrate that there have been significant behavioral arrangements of the patients after suffering from a heart attack. After observing these significant correlations, several paired sample t tests were conducted to see significant group differences in behavioral indicators between before, and after the heart attack. The MI patients paid more attention to the dietary [t(150) = -7.88, p <.001], doing sports [t(150) = -7.88, p <.001], not gaining weight [t(150) = -8.39, p <.001], not smoking cigarette [t(150) = -9.11, p <.001], and not drinking alcohol [t(150) = -6.92, p <.001], after the crises (respectively; M = 2.90, M = 2.35, M = 2.55, M = 3.23, M = 3.40) than before the crises (respectively; M = 1.59, M = 1.68, M = 1.57, M = 1.84, M = 2.57).

Besides, whether the individuals with higher behavior changes significantly showed higher PTG scores than the individuals with fewer behavior changes after the effect of gender controlled was analyzed for testing the 4th hypothesis.

> Hypothesis 4: After controlling the effect of gender, the MI patients/ the spouses reporting higher behavior change (dietary, sports, not alcohol, no smoking) would be significantly have higher PTG scores than the MI patients/the spouses reporting lower behavior change.

For testing this hypothesis, behavior difference (difference between after the event, and before the event; on dietary, sports, not gaining weight, not taking alcohol, no smoking) scores within the highest and the lowest 25th percentile were grouped as "higher behavior changes", and "fewer behavior changes" categories, respectively.

ANCOVA was conducted to test 4th hypothesis separately for the MI patients and the spouses. Degree of behavior change was set as an independent variable, gender was set as a covariate and the PTG was set as dependent variable.

When looking at the MI patients responses for the total PTGI score, ANCOVA results demonstrated that degree of behavior change did not reveal significant effect on PTG after removing the effect of gender; $\underline{F}$ (1,50) = 1.40, n.s.

In terms of the subscales of the PTG, MANCOVA were conducted. The degree of behavior change was taken as an independent variable, gender was set as a covariate, and five subscales of PTGI were set as the dependent variables. MANCOVA results revealed that the MI patients (with wither higher or lower behavior change) scores differed across the factors of PTGI; Wilks' Λ= .72. $\underline{F}$ (5,46) = 3.5,$\underline{p}$ <.01. When looking at the univariate F tests, improved relationship [$\underline{F}$ = .06, n.s.], possibilities of life [$\underline{F}$ = 2.19, n.s.], personal strength [$\underline{F}$ = 2.57, n.s.], and spiritual development [$\underline{F}$ = .08, n.s.] did not reveal significant group difference. However, appreciation of life dimension showed significant group difference [$\underline{F}$ = 7.66, $\underline{p}$ <.01]. The MI patients with higher behavior change (M = 11.04, SE = .97) had higher scores on the appreciation of life dimension than the MI patients with lower behavior change (M = 7.70, SE = .69).

As for looking at the spouses responses, no significant correlation was found between spouses PTG, and any behavioral changes (r =.12, p = n.s). The spouses did not make any behavioral arrangements into their lives after their husband or wife suffered from a heart attack. Several paired sample t tests were conducted to see whether significant group differences in behavioral indicators between before and after the heart attack of their spouses were seen. The spouses paid more attention to the dietary [$\underline{t}$ (135)

= -4.46, p <.001], and doing sports [t (135) = -3.24, p <.001] after the crises of spouses heart attack (respectively; M = 2.16, M = 1.74) than before the crises (respectively; M = 1.69, M = 1.47). However there was no significant difference in not gaining weight [t (135) = -.83, n.s], not smoking cigarette [t (135) = -1.57, n.s], and not drinking alcohol [t 135) = .14, n.s] dimensions before, and after the crises.

In order to test 4th hypothesis, ANCOVA was conducted. When looking at the spouses responses for the total PTGI score, ANCOVA results demonstrated that degree of behavior change did not reveal significant effect on PTG after removing the effect of gender; F (1,51) = .48, n.s.

In terms of the subscales of the PTG, MANCOVA were conducted. The degree of behavior change was set as an independent variable, gender was taken as a covariate, and five subscales of PTGI were set as the dependent variables. MANCOVA results revealed that the spouses (with wither higher or lower behavior change) scores did not significantly become different across the factors of PTGI; Wilks' Λ= .97. F (5, 46) = .29, n.s. Therefore, the univariate F results did not show significant difference also; improved relationship [F = .90, n.s.], possibilities of life [F = .41, n.s.], appreciation of life [F = .04, n.s.], personal strength [F = .15, n.s.], and spiritual development [F = .33, n.s.] did not reveal significant group difference. Therefore, despite there was a significant correlation between PTG, and behavioral indexes, the spouses did not significantly differ from each other according to degree of behavior change. Consequently, not disregarding the perceptual part of PTG may not be so easy.

3.3.4 The Open Ended Questions Related to the Effect of the Event, and PTG

Fourthly, consistency between the MI patients /the spouses PTG and open ended questions were assessed according to 5th hypothesis. The effects of the heart failure on the patient, and their spouses were also investigated by open ended questions to make a detailed behavioral and cognitive examination of the event. PTG and open ended questions relationship were tested for the fifth hypothesis by correlation.

> Hypothesis 5: The individuals who have optimistic opinion would significantly show higher scores on the three open ended questions assessing the consequences of the MI than the others (individuals with negative, and mixture of positive and negative opinion).

The responses of both the MI patients, and the spouses were categorized in order to make a quantitative analysis of the responses to the open ended questions. For testing the three open ended questions (one neutral, one positive, and one negative consequences), the responses were classified by one graduate student in psychology into four dimension namely (1) 'positive thoughts', (2) 'negative thoughts', (3) 'fatalistic thoughts', (4) mixture of positive and negative opinion and (5) 'no opinion' (see example in Table 7). The judges (two psychologists) tried to classify which sentence can be accepted into which category, and rated all the responses independently. The reports which included the concepts such as 'thinking to learn the value of life" labeled as 'positive thoughts'. The reports like "I have difficulty in managing my life" were accepted as negative expectations. The reports such as "This disease is my destiny" accepted as fatalistic thoughts. The reports like "I have difficulty in managing my life" were accepted as negative expectations. The reports such as "If my health is good, I feel

Table 7 Examples, and percentages of thoughts in each category of MI patients, and spouses for three open ended questions

Categories	Examples	Percentage (N)
Question 1(Neutral question):"Since the time of your/ your partner's experience of hearth problems, how has been the experience of event that affected you?"		
Positive thoughts	'I learn the value of life'	30.3% (N=46) (patient)
	'I learn the value of my family, and friends'.	13.8% (N=21) (spouse)
Negative thoughts	'I thought I could die'	46.1% (N=70) (patient)
	'I have never walking freely since heart attack'.	51.3% (N=78) (spouse)
Mixture of positive and negative thoughts	'I feel better but have anxiety related with doctor control'	9.2% (N=14) (patient)
	'I become to be more sensitive'	12.5% (N=19) (spouse)
Fatalistic thoughts	'Having religious belief helps me during the crises'	0.7% (N=1) (patient)
	'I hope my God helps me recover'.	0% (N=0) (spouse)
No opinion	'I do not know'.	13.2% (N=20) (patient)
		12.5% (N=19) (spouse)
Question 2 (Positive question): "Since the time of your/ your spouse's experience of hearth problems, what have been the positive aspects of experience that affected you?"		
Positive thoughts	'I learn the value of hospitals, doctors, nurses'	63.6% (N=96) (patient)
	'I feel I am younger than before'	48.7% (N=68) (spouse)
Negative thoughts	'I have decrement in my self esteem'.	3.9% (N=6) (patient)
	'Responsibilities in job affect my health negatively'	5.9% (N=9) (spouse)
Mixture of positive and negative thoughts	'My family control me continuously'	3.9% (N=6) (patient)
	'I can not leave my husband alone'	3.9% (N=6) (spouse)
Fatalistic thoughts	Having religious belief helps me during the crises'	0.7% (N=1) (patient)
	'I have increment in religious participation'.	0.7% (N=1) (spouse)
No opinion	'I do not know'.	28.3% (N=43) (patient)
		34.9% (N=53) (spouse)
Question 3(Negative question): Since the time of your/ your spouse's experience of health problems, what have been the negative aspects of experience of that affected you?"		
Positive thoughts	'I started to live a healthier life than before'	2.6% (N=4) (patient)
	'I decreased my negative feelings by means of walking'	3.9% (N=6) (spouse)
Negative thoughts	'I am getting to be tired'	59.9% (N=91) (patient)
	'I get nervous about dying'	54.6% (N=83) (spouse)
Mixture of positive and negative thoughts	'I consider that if the operation will good, I feel better. If not, I don't know'	2 % (N=3) (patient)
		2 % (N=3) (spouse)
Fatalistic thoughts	'Having religious belief helps me during the crises'	0% (N= 0) (patient)
	'I have increment in religious participation'.	0% (N= 0) (spouse)
No opinion	'I do not know'.	34.9% (N=53) (patient)
		29.6% (N=45) (spouse)

good. If my health is bad, I feel bad" were accepted as the mixture of positive and negative thoughts. This disease is my destiny" accepted as fatalistic thoughts. Finally, some patients did not express any opinion. These kinds of responses were accepted as in the no opinion category. Then the kappa coefficients were calculated in order to assess inter-rater agreement between the judges. The judges' agreement in patients' and their spouses' responds of open ended questions were calculated separately. As for the patients' responses, kappa coefficients can be accepted as outstanding; for neutral question (question 1) as .75, for the positive question (question 2) as .85, and for the negative question (question 3) as .96. Similarly, Kappa coefficients can be accepted as outstanding; for neutral question (question 1) as .95, for the positive question (question 2) as .94, and for the negative question (question 3) as .96.(Cohen , 1960) in the spouses data.

The further analyses were conducted to see systematic group differences between optimistic, negativist, and mixture of positive and negative opinion to three open ended questions on PTG. In order to decrease Type I Error, individuals with fatalistic and no opinion were removed from the analyses. While the types of responds (positive, negative and mixture of positive and negative opinion) were independent variable, the PTGI was dependent variable. However, one way ANOVA results of patients did not yield significant difference between responds type of the individual; for the neutral question [$\underline{F}$ (2,127) = 2.05, n.s]; for the positive consequences question [$\underline{F}$ (2,104) = 2.08, n.s]; and for the negative consequences question [$\underline{F}$ (2, 95) = .69, n.s]. Similarly, one way ANOVA results of spouses did not yield significant difference between the responds type of the individuals; for the neutral question [$\underline{F}$ (2,115) = 1.44, n.s]; and for the

positive consequences question [F (2, 80) = .02, n.s]. Although systematic group difference were found for the results of the negative consequences related question [F(2,89) = 3.24, p < .05], post hoc tests did not reveal systematic difference between groups. Therefore, there were not significant group differences between the type of respond on PTG neither in the MI patients' PTG nor in the spouses' PTG.

Further analyses were conducted after categorizing PTG as lower and higher PTG by means of standard deviations (+- 1 Standard Deviation). Individuals with positive thoughts would have higher PTG. According to this, χ^2 analyses were performed with the types of responses (positive, negative and positive and negative) and the degree of PTG (higher and lower PTG). Only neutral questions were assessed since other questions had relatively fewer cases in each cell. For the MI patient sample, results did not reveal significant results, χ^2 (2) = 4.83, n.s. For the spouses sample, the results also did not demonstrate significant difference, χ^2 (2) = 2.78, n.s.

3.4 Testing Posttraumatic Growth Model

In order to examine the role of environmental factors, individual factors, perception of the event, and cognitive processing on the posttraumatic growth, the Structural Equation Modeling (SEM) was employed by using AMOS.6 software (Arbucle, 2004) since it helps to test latent variables through observable variables (Schreiber, Stage, King, Nora, & Barlow, 2006), and to test the relations among the latent variables (Streiner, 2006). The structural analysis was conducted by following these five steps; model identification, model estimation, model modification, model testing, and, model respecification. Firstly, the dependent, and the independent variables

were identified, and, observed, and latent variables were constructed accordingly. In the model estimation, the measurement model that is the relationship between variables was tested (Figure 3 & 4). In the model modification step, some modifications to the model took place (Table 9 & 10). In the model testing, the modified model was tested. In the last step, model respecification, the final models (Figure 3 & 4) were respecified, tested, and compared with the modified model. All of these analyses were done separately for the patients, and their spouses.

3.4.1 Model Identification

In the model identification step, a proposed model was constructed according to the Schaefer and Moos' hypothesis. In this step, the variables, and factors that determine the latent construct were classified. The names, and numbers of the observed, and unobserved variables were presented in Table 8.

The observed or indicator variables are directly measured variables, and can be both dependent, and independent variables. Unobserved variables or latent variables are variables that are not directly measured, but predict the measured variables according to the Schaefer and Moos model. In other words, unobserved variables are constructs such as environmental factors, individual factors, perception of the event, cognitive processing in this model, and are not directly measured, but were constructed by certain measured variables.

As illustrated in Figure 3, the measurement model consisted of four latent constructs, which were represented in the figure by ellipses. The observed variables were presented in the figure by rectangle.

Table 8 Names, and Numbers of Observed, and Unobserved Variables both used in the Patients, and Spouses Model

Latent (unobserved) Variables	Name of Indicator (observed) Variable in the Model (variables names in the patients model/ spouses model)	Number of Indicator (observed) Variables
Environmental Resources	Social Support from Friend (fri/efri)	One observed variable combined 4 items
	Social Support from Family (fam/efam)	One observed variable combined 4 items
	Social Support from Significant other (sig/esig)	One observed variable combined 4 items
	Marital Quality (mar/emar)	One observed variable combined 3 items
	Number of Children(child)	One observed variable combined 1 items
	Number of children living with family (child18)	One observed variable combined 1 items
Individual Resources	Age (age/eage)	One observed variable combined 1 items
	Sex (sex/esex)	One observed variable combined 1 items
	Commitment (com/ecom)	One observed variable combined 6 items
	Control (cont/econt)	One observed variable combined 7 items
	Challenge(chal/echal)	One observed variable combined 6 items
	Locus of Control (loc/eloc)	One observed variable combined 47 items
	Self Esteem (est/eest)	One observed variable combined 10 items
	Depression(dep/edep)	One observed variable combined 21 items
Perception of the event	Perceived Prognosis (prog/eprog)	One observed variable combined 1 items
	Perceived Threat(threat/ethreat)	One observed variable combined 1 items
	Time since Diagnosis (time/time)	One observed variable combined 1 items
	Type of Surgery (surg)	One observed variable combined 1 items
	Having Other Disorder (odis/eodis)	One observed variable combined 1 items
Cognitive Processing	Rumination (rum/erum)	One observed variable combined 8 items
	Hypervigilance(hyp/ehyp)	One observed variable combined 8 items
	Avoidance (avo/eavo)	One observed variable combined 6 items
	Problem Focused Coping (prob/eprob)	One observed variable combined 29 items
	Emotion Focused Coping (emot/eemot)	One observed variable combined 22 items
	Indirect Coping (indir/eindir)	One observed variable combined 12 items
	Religious Participation (after event) (rpaaf/erpaaf)	One observed variable combined 1 items
	Religious Belief (after event) (rbbaf/erbbaf)	One observed variable combined 1 items
Endogeneous Variable	Name of Indicator (observed) Variable in the Model (variables names in the patients model/ spouses model)	Number of Indicator (observed) Variables
PTG	Improved relationship (p1/eptg1)	One observed variable combined 7 items
	New possibilities for one's life Greater (p2/eptg2) Appreciation of life (p3/eptg3)	One observed variable combined 5 items
	Greater sense of personal strength (p4/eptg4)	One observed variable combined 3 items
	Spiritual development (p5/eptg5)	One observed variable combined 4 items
		One observed variable combined 2 items

In the present study, Schaefer and Moos model tested for both patients, and their spouses separately according to 6^{th}, 7^{th}, 8^{th}, and 9^{th} hypotheses.

Hypothesis 6: Environmental and individual resources would determine the effect of the characteristics of an event, and PTG during stressful transition periods.

Hypothesis 7: The perception of the event would determine cognitive processing and coping.

Hypothesis 8: Cognitive processing and coping would determine the posttraumatic growth reactions.

Hypothesis 9: The relationship between both the environmental, and individual resources, and PTG would be affected by the perception of the event, cognitive processing and coping.

In this following section patients' and spouses' model are going to explained, and discussed separately.

3.4.2 Models Testing for Patients

3.4.2.1 Model Estimation

After the model identification, the measurement model was tested for the reason that the measurement of each latent variable is essential to acquire a psychometrically sound model in SEM (Bollen & Long, 1993; Byrne, 2001). If ratio between χ^2, and degrees of freedom (Df) is smaller than three, the model is accepted as having good fit regardless of the p value (Sümer, 2000).

Consequently, the validity of measurement model was tested separately for patients, and their spouses group by means of using chi square difference test. The result of chi square difference test demonstrated that although the variables were correlated with each other, and measurement model was adequate for the patients; $\chi 2$ (397, N=151) = 991.33, $p < .001$, ($\chi^2 / df = 2.50$), the model did not fit the data according to some Goodness of Fit Tests; RMSEA=.100, CFI=.614, RFI=.420, IFI=.630. When looking at the latent variables (Figure 3), the most powerful relationship was obtained between the individual resources and cognitive processing-coping (-.63). However, the least powerful relationship was obtained between the individual resources and PTG (-.18). Observed variables, and latent variables relationship was also examined for the measurement model. The most powerful relationship was obtained between social support from friend, and environmental resources (.76), commitment, and individual resources relationship (.79). perceived prognosis, and perception of the event (.80), and indirect coping and cognitive processing-coping relationship (.72).The least powerful relationship was obtained between the number of children, and environmental resources (.05), age, and individual resources (.02), time passed since diagnosis, and perception of the event (.14), religious participation after the event, and cognitive processing-coping (-.12).

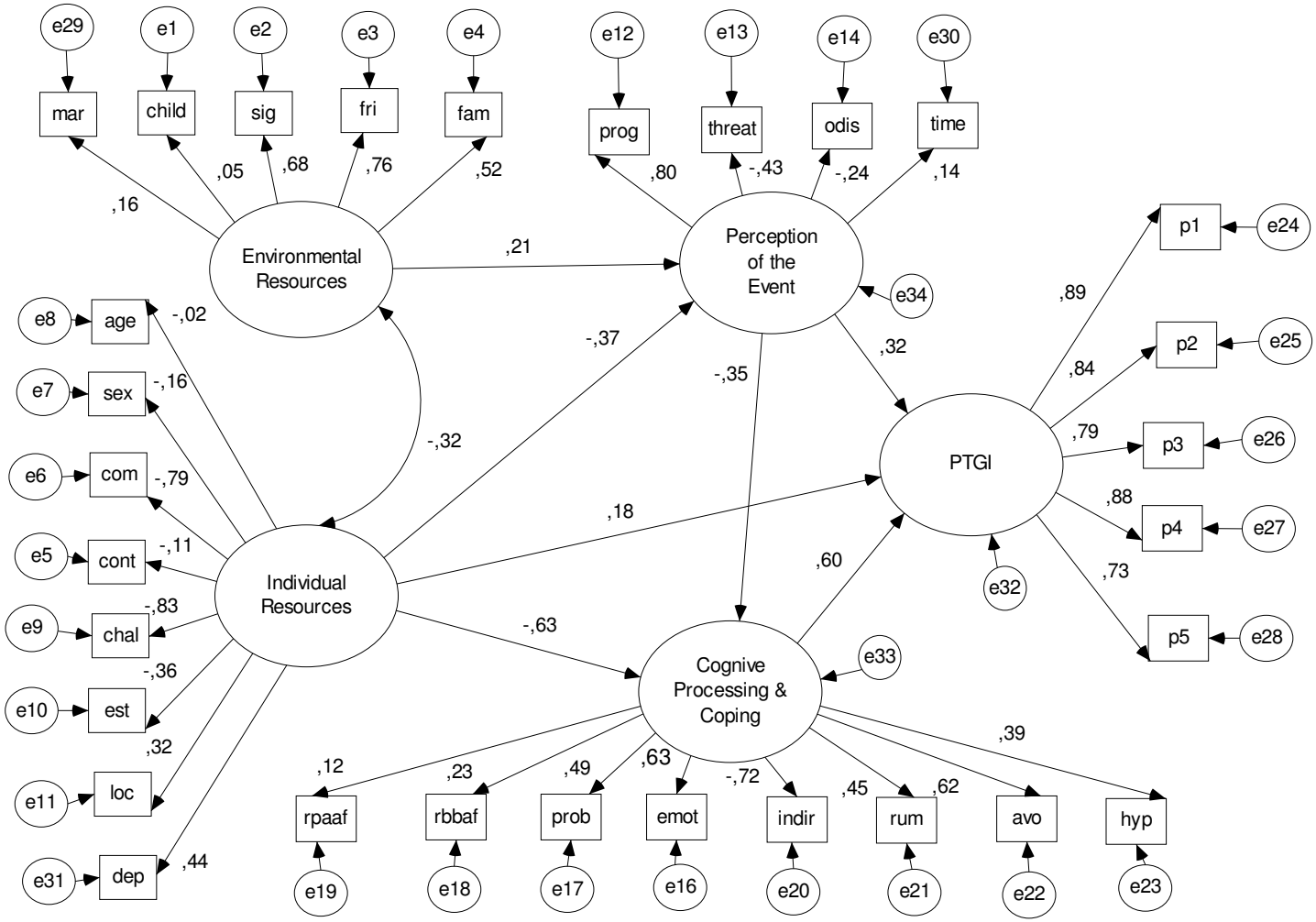

Figure 3 Measurement Model for Patients Group

3.4.2.2 Model Modification

The post hoc model modifications were performed in an attempt to develop a better fitting model as the model estimation revealed a misfit in the model estimation step of SEM. The modification indexes in the AMOS output suggested some modifications in order to develop better fitting data. The model modification was conducted with the specification search (over 1.000. 000 probability estimates). The modifications that were suggested by the AMOS program were presented in Table 9.

Table 9 Suggested modifications (variables to be extracted) by AMOS Program to improve the Fit of Hypothesized Model for the patients

Observed-Latent Variables Relationship	Number of child (child)	→	Personal Resources
	Numb. of child (living <18 year old)	→	Personal Resources
	Marital quality	→	Personal Resources
	Age	→	Individual Resources
	Sex	→	Individual Resources
	Control	→	Individual Resources
	Depression	→	Individual Resources
	Time passed since diagnosis	→	Event Related Factors
	Religious belief after the event	→	Cognitive Processing-Coping
	Religious participant after the event	→	Cognitive Processing-Coping
	Problem focused coping	→	Cognitive Processing-Coping
	Emotion focused coping	→	Cognitive Processing-Coping
Laten t-	Event related factors	→	PTG
	Individual resources	→	Cognitive Processing-Coping

3.4.2.3 Model Testing, and Model Respecification

The models for the patients were respecified according to the recommendations of AMOS program since adequate fit was not obtained in the model estimation stage. Once model was respecified according to the suggestions of model modification, and nonsignificant paths were deleted, the test of modified model for patient group revealed that the model fitted the data adequately, χ^2 (145, N=151) = , p <.001. Moreover, the χ^2 ratio was below the suggested 2:1 ratio (χ^2 */df* = 1.78). Goodness of fit index shows that the fit was adequate; RMSEA=.072, CFI=.897, RFI=.736, IFI=.901.

When looking at the latent variables in the patient model (Figure 4), the most powerful relationship was obtained between both individual resources, and perception of the event (.29), and perception of the event, and cognitive processing-coping, and PTG (-.29). However, the least powerful relationship was obtained between individual resources, and PTG (.20). The relationship between observed variables, and the latent variables was also examined for the measurement model. The most powerful relationship was obtained between social support from friend, and environmental resources (.79), challenge, and individual resources relationship (.82), perceived prognosis, and perception of the event (.89), and rumination, and cognitive processing-coping relationship (.94).The least powerful relationship was obtained between familial support, and environmental resources (.50), locus of control, and individual resources (-.32), having other disorder, and perception of the event (-.24), indirect coping, and cognitive processing-coping (-.29).

The direct effects yield important findings in the present study. Individual resources significantly related with both perception of the event (Regression Estimate=.29, p <.05), and PTG (Regression Estimate=.20, p <.01) directly. Environmental resources significantly related with both perception of the event (Regression Estimate=.23, p <.05), and PTG (Regression Estimate=.24, p <.05) directly. The results of both environmental and individual factors confirmed 6th hypothesis in the present study. Likewise suggested in the 7th hypothesis, perception of the event significantly related with cognitive processing-coping (Regression Estimate=-.29, p <.05). Additionally, cognitive processing-coping significantly related with PTG (Regression Estimate= .21, p <.01) as regarded in the 8th hypothesis.

Apart from direct effects, indirect effects revealed important findings in the present study. When testing the effect of individual, and environmental factors on PTG via perception of the event, and cognitive processing-coping, environmental resources showed significant indirect effects on PTG (Regression Estimate=.15, p <.05), and individual resources demonstrated indirect effects on PTG (Regression Estimate=-.12, p <.05). While individual resources explained 4% variance on PTG indirectly, environmental resources explained 2% variance. Consequently, 9th hypothesis was supported in the MI patients group.

Table 10 presents variances explained by the latent variables. Thirteen percent of the variance in perception of the event was explained by two variables: individual and personal resources. Moreover, perception of the event explained 8% of variance in the cognitive processing-coping. Finally, cognitive appraisal of the event explained 4% of variance in the PTG. Besides, while individual resources explained 4% variance in the PTG, environmental resources explained 2% variance in the PTG. Consequently, 14% of

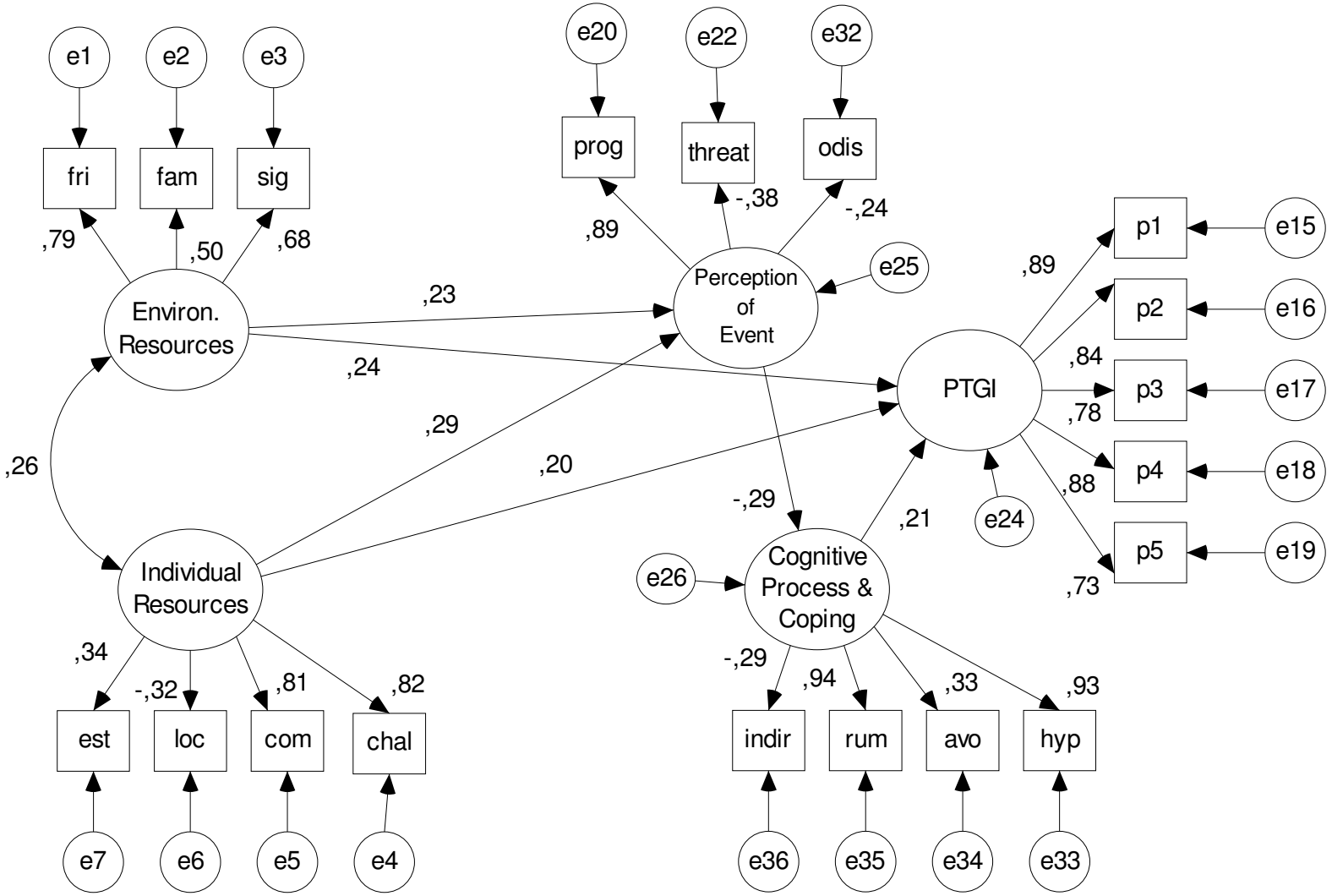

Figure 4 Modification of the Model for Patients Group

variance in PTG was explained by three variables; cognitive appraisal of event-coping, individual resources, and environmental resources.

Table 10 Squared Multiple Correlation Coefficients (R^2) of the Variables in the Patients' Model

Variables in the model	R^2
Perception of the event	.13
Cognitive appraisal-coping	.08
PTG	.14

3.4.3 Model Testing for Spouses

3.4.3.1 Model Estimation

For the data obtained from the spouses, the model was adequate χ^2 (427, N=137) = p <.001 (χ^2 /*df* = 2.16), however the model did not fit the data according to some Goodness of Fit Tests; RMSEA=.088, CFI=.610, RFI=363, IFI=.630 (Figure 5).When looking at the latent variables, the most powerful relationship was obtained between individual resources and perception of the event (-.57). However, least powerful relationship was obtained between environmental resources, and perception of the event (.14). Besides, the relationship between the observed variables, and the latent variables was observed for the measurement model. The most powerful relationship was obtained between social support from friend, and environmental resources (.92), locus of control, and individual resources relationship (-.68), perceived prognosis, and perception of the event (-.56), and hypervigilance, and cognitive processing-coping relationship (.94).The least powerful relationship was obtained between the number of children, and

environmental resources (.03), sex, and individual resources (.04), time passed since diagnosis, and perception of the event (-.21), religious participation after event, and cognitive processing-coping (.03).

3.4.3.2 Model Modification

The post hoc model modifications were performed in an attempt to develop a better fitting model as the model estimation revealed a misfit in the model estimation step of SEM. The modification indexes in the AMOS output suggested some modifications in order to develop better fitting data. Model modification was conducted with the specification search (over 1.000. 000 probability estimates). The modifications that were suggested by the AMOS program were presented in Table 11 for the spouses' data.

Table 11 Suggested modifications (variables to be extracted) by AMOS Program to improve the Fit of Hypothesized Model for spouses

Observed-Latent Variables Relationship		
	Number of child (child)	→ Personal Resources
	Number of child (living <18 year old)	→ Personal Resources
	Sex	→ Individual Resources
	Religious participant after the event	→ Cognitive processing-coping
	Problem focused coping	→ Cognitive processing-coping

3.4.3.3 Model Testing, and Model Respecification

The models for spouses were respecified according to the recommendations of AMOS program since adequate fit was not obtained from the model estimation stage. The model was respecified according to the suggestions of model modification, the accepted model was tested. After deleting the nonsignificant paths form the model, and then the test of modified model revealed that the model fitted the data adequately, χ^2 (292, N=137) =619.096, p <.001. Furthermore the χ^2 ratio was below the suggested 3:1 ratio (χ^2 /*df* = 2.12). Goodness of fit index showed that the fit could be regarded as adequate; RMSEA=.086, CFI=.706, IFI=.720.

When looking at the latent variables in the spouse model (Figure 6), the most powerful relationship was obtained between individual resources and perception of the event (-.57). However, the least powerful relationship was obtained between both environmental resources, and perception of the event (.15), and individual resources, and PTG (.15). Besides, the relationship between the observed variables, and latent variables was observed for the measurement model. The most powerful relationship was obtained between social support from friend, and environmental resources (.96), locus of control, and individual resources relationship (-.68). perceived prognosis, and perception of the event (-.56), and hypervigilance, and cognitive processing-coping relationship (.94).The least powerful relationship was obtained between marital quality, and environmental resources (.14), age, and individual resources (-.20), time passed since diagnosis, and perception of the event (-.21), religious participation after the event, and cognitive processing-coping (.03).

In SEM models, direct, and indirect effects were also investigated. At first, direct effects are mentioned. As regarded in the 6th hypothesis, individual resources significantly related with both event related factors (Regression Estimate=-.573, p <.05), and PTG (Regression Estimate=.15, p <.01) directly. While environmental resources significantly related with PTG (Regression Estimate=.19, p <.05) directly, they did not significantly related with the event related factors (Regression Estimate=.15, p = n.s).Therefore, 6th hypothesis in the present study was partially supported. Besides, event related factors significantly related with cognitive processing-coping (Regression Estimate=.45, p <.05) as suggested in the 7th hypothesis. Cognitive processing-coping significantly related with PTG (Regression Estimate= .39, p <.001) as suggested in the 8th hypothesis.

Secondly, indirect effects are explained in more detail. When testing the effect of individual, and environmental factors on PTG via perception of the event, and cognitive processing-coping, environmental resources did not show as significant indirect effects on PTG (Regression Estimate=.9, p = n.s), and individual resources demonstrated indirect effects on PTG (Regression Estimate=-.27, p <.05). Therefore 9th hypothesis was partially supported for the spouses' of MI patients.

Table 12 presents the variances explained by the latent variables. In the perception of the event, 35% of variance was explained by two variables, individual, and personal resources. Moreover, perception of the event explained 20% of variance in the cognitive processing-coping.

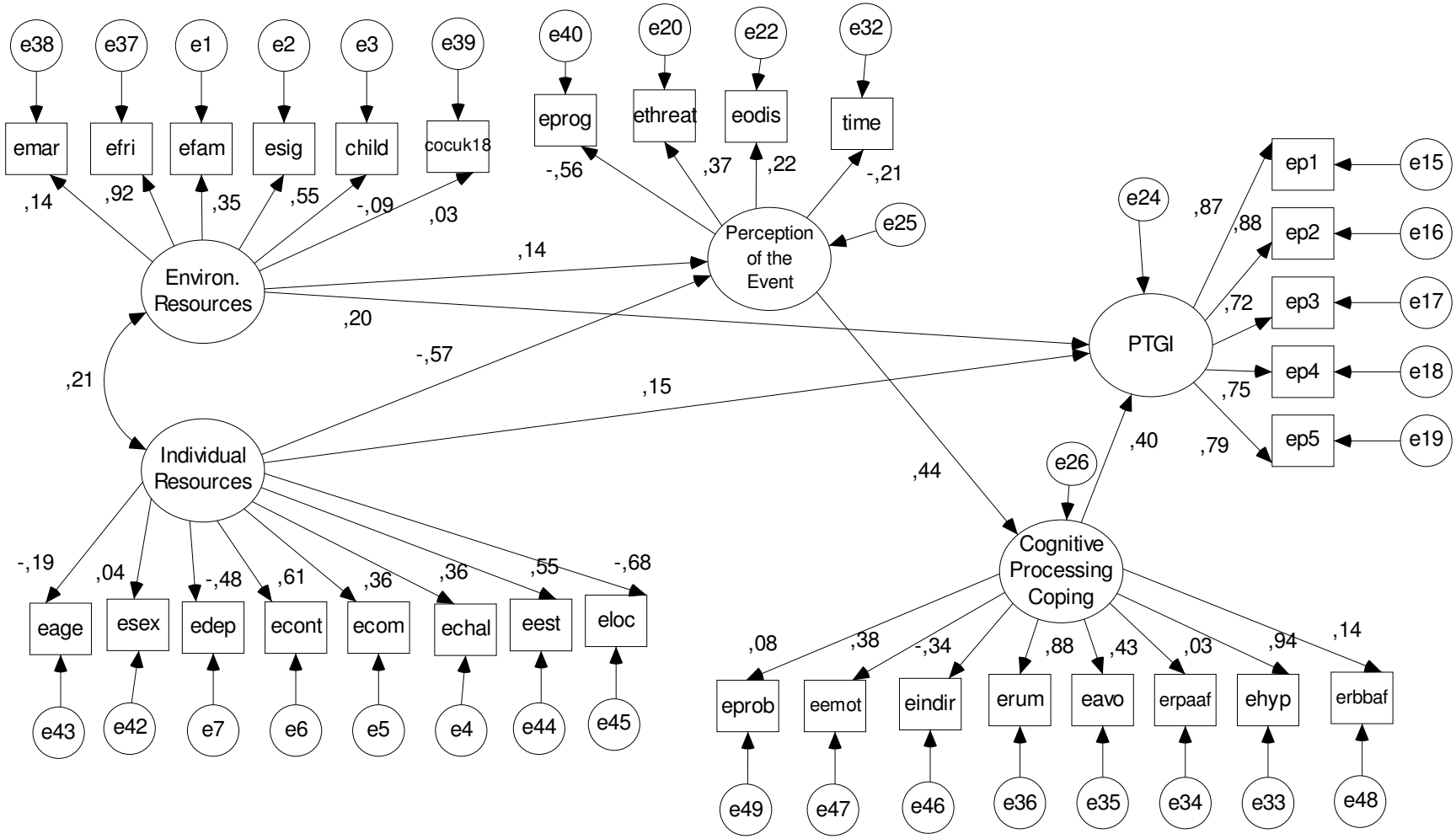

Figure 5 Measurement Model for Spouses Group

Finally, cognitive appraisal of event-coping explained 15% of variance in the PTG. Besides, while individual resources explained 2% variance in the PTG, environmental resources explained 4% variance in the PTG. Consequently, 18% of variance in PTG was explained by three variables; cognitive appraisal of event, individual resources, and environmental resources.

Table 12 Squared Multiple Correlation Coefficients (R^2) of the Variables in the Spouses' Model

Variables in the model	R^2
Perception of the event	.35
Cognitive appraisal-coping	.20
PTG	.21

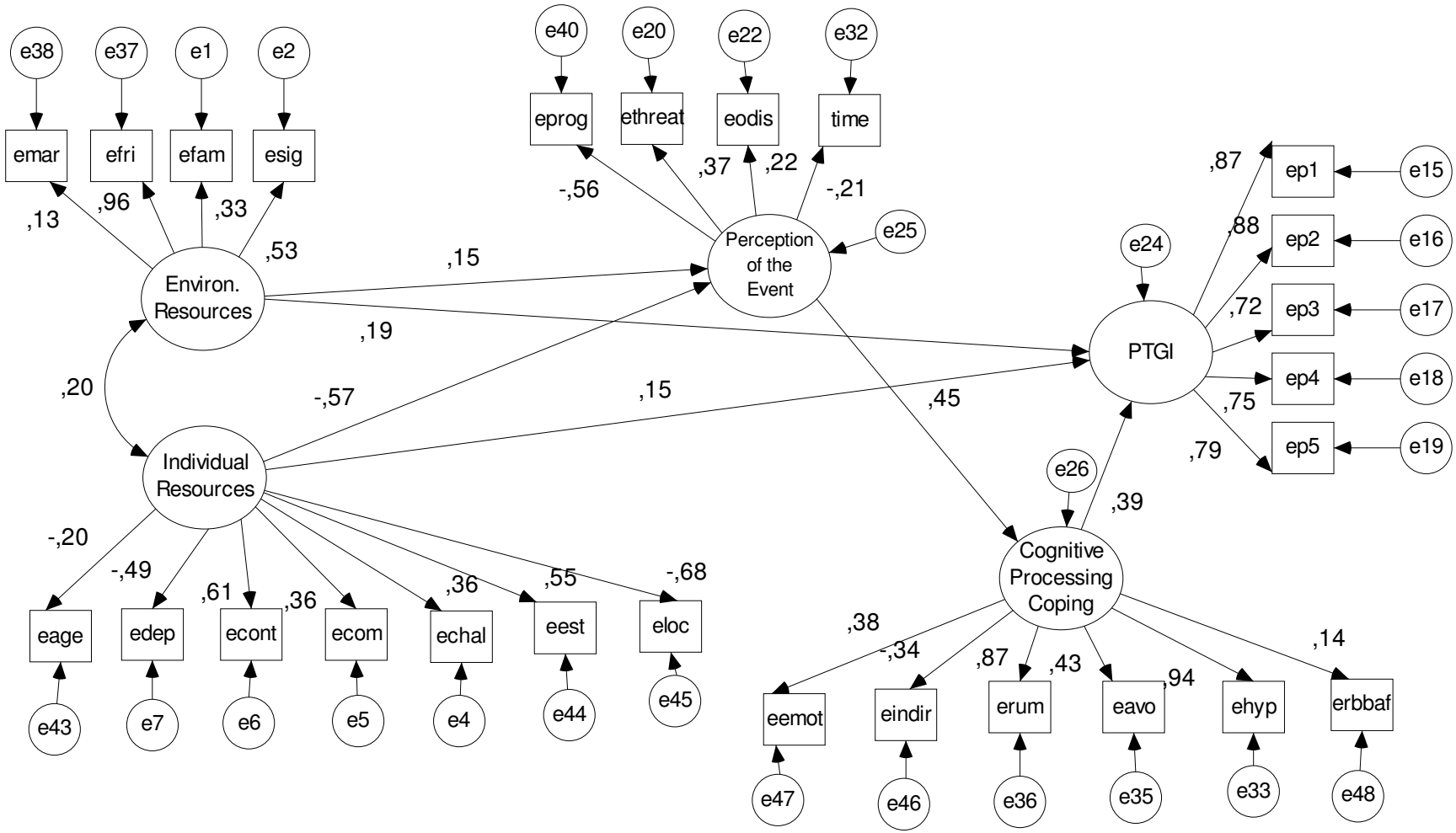

Figure 6 Modification of the Model for Spouses Group

CHAPTER FIVE

DISCUSSION

The purpose of the present study was to examine PTG among couples after a traumatic life event. Additionally, a comprehensive model of PTG developed by Schaefer and Moos was examined using SEM analysis. This model, namely "Life Crises, and Personal Growth Model", consists of, and suggests the relationships among the effect of environmental resources, individual resources, perception of the event, cognitive processing-coping variables, and PTG. For these purposes, PTG was measured by the PTGI, and some Likert Type scales or open ended questions related to the behavioral, and cognitive consequences of PTG were administered to the MI patients, and their spouses. This chapter presents a summary of the results, and discusses the findings in relation to the literature, and hypotheses of this study. The limitations, and recommendations for future research are provided, and the implications of the study are also discussed.

4.1 Development of PTG in the Patients, and Their Spouses

Although PTG is accepted as a variable influencing a larger group (Bloom, 1998;

Cohen et al., 1998b), relatively fewer studies have been conducted to verify this viewpoint. For instance, Cohen et al. (1998b) highlighted that death of a child affected the family members, and the child's friends in his/her classroom. Generally, greater distress significantly predicted PTG such as found in the breast cancer survivors (Francis, 2004). Consequently, in this study, PTG development among couples who experienced heart failure of one was examined after controlling the effect of gender. Gender effect has to be controlled since our sample largely composed of men MI patients and women spouses. Its effect may confound the results since women and men uses different coping mechanisms (Calhoun & Tedeschi, 1998a; Polatinsky & Esprey, 2000), and live in different social life circumstances (Calhoun & Tedeschi, 2001).

According to the results, the relationship between PTG of the patients', and that of the spouses' was significantly positively correlated ($\underline{r}$ =.77, $\underline{p}$ <.001). In addition to this correlational study, a more inclusive study was conducted to examine the systematic group differences between the patients, and their spouses on both the total PTGI and factors of the PTGI. Results revealed that the MI patients (M = 11.41, SE = .45) had higher scores than the spouses (M = 9.87, SE = .33) only in the sense of personal strength dimension as partially expected in the 1st hypothesis. This result demonstrates the MI patients have higher PTG scores in the sense of personal strength since they felt greater distress consistently with the literature findings. The distress and PTG relationship has been established previously among both HIV/AIDS caregivers (Cadell et al., 2003), and holocaust child survivors (Lev-Wiesel & Amir, 2003). However, there were not group differences in the total PTGI. In accordance with factor structure of PTGI, when removing the effect of gender, MI patients', and their spouses' PTG

responses to improved relationship, appreciation of life, possibilities of life and spiritual development did not significantly differ from each other as well. Therefore, PTG may be interpreted as having a simultaneous nature across couples (likewise seen in Weiss, 2002). In other words, heart failure may lead to profound changes in the spouses apart from patients. Similarly, Weiss (2002) found that majority of husbands (88%) reported positive changes particularly in appreciation of life, and enhancement in interpersonal relationship after encountering with the wife's breast cancer. As a result, studies comparing the trauma survivors, and significant others ratings (e.g., spouses, children, friends) should be examined in the future studies to understand whether or not PTG is experienced simultaneously and whether the distress level affect the PTG. Previously, Park et al. (1996) compared the congruency between self PTG scores with their spouses, friends, and relatives, and they found that greater agreement was seen between self, and their spouse ratings. Besides, it is accepted that PTG has a paradoxical nature of PTG, since PTG occurs as a result of great distress, and is often maintained through continuous distress (Tedeschi & Kilmer, 2005). Future studies may clarify these relationships.

4.2 Validity of the MI Patients and the Spouses PTG: Indirect Evidences of PTG

Assessing PTG only with self report data has been criticized due to the individuals' tendency to overestimate the scores of PTG (Park & Helgeson, 2006). The tendency to recall only positive events (Smith & Cook, 2004), and to see merely meaningful parts of life may perhaps exist among trauma survivors since the individuals may protect themselves from danger to life (Davis & Mc Kearney, 2003). Therefore, the

ways of decreasing the bias in order to prove the existence of PTG have been scrutinized in various studies. These efforts can be categorized into three: consistency between PTGI scores rated by self or rated by spouses according to their observations, consistency between PTGI scores, and behavioral indexes (dietary, sports, alcohol, and cigarette consumption etc.), and consistency between responses to open ended questions, and PTGI. In the present study, these ways were examined to demonstrate the evidence of PTG by indirect measures.

Firstly, Cordova and his colleagues (2001) recommended to compare the self report ratings of the trauma survivors to significant others' observation. Similarly, the consistency between the self report ratings of the MI patients, and that of the spouses' according to their observations was examined in the present study. According to bivariate correlations, moderately positive correlation was obtained between the MI patients' PTG rated by themselves, and observed by the spouses ($\underline{r} = .58$, $\underline{p} < .001$), and spouses' PTG rated by themselves, and observed by the MI patients' (husbands/wives) was also positively correlated ($\underline{r} = .55$, $\underline{p} < .001$). In order to clarify these results in more detail, the ANCOVA and MANCOVA analyses revealing systematic group differences were conducted. According to the results, the MI patients PTG rated by themselves were significantly higher than the spouses observed. This result may reveal that there is overestimation or underestimation problem. In other words, the MI patients may overestimate the self PTG or the spouses may underestimate the MI patients' PTG.

For the subscales, PTGI rated by the MI patient, and observed by their spouses' (spouses opinions related with their patient PTGI) did not significantly differ from one another when controlling the effect of gender as expected in the second hypothesis.

Similarly, for the improved relationship, new possibilities for one's life, appreciation for life dimension, spiritual development and sense of personal strength, this difference was not observed. This result may be interpreted as the MI patients did not overestimate their own growth reactions or the spouses did not underestimate the MI patients' growth.

When the spouses' PTGI score rated by themselves, and observed by the MI patients (husbands/wives) compared, PTGI rated by the spouses, and observed by the MI patients' (the MI patients opinions related with their spouses PTGI) did not significantly differ from one another when controlling the effect of gender as expected in the third hypothesis. Besides, PTGI rated by the spouses and observed by the patients did not significantly differ according to the factors of PTGI. Therefore, there is no prove regarding the individual's need for self protection (Nolen-Hoeksema, & Davis, 2004) and a kind of individual's need for decreasing stress (Park, 2004; Frazier & Kaler, 2006) and self serving bias.

Secondly, in the heart disease, behavioral arrangements should be inevitable. Doctors recommend their patients to change unhealthy behaviors (e.g., cigarette, and alcohol consumption etc.) in order to gain their health back. Therefore, PTG and behavioral indicators relationships were tested since the greater the scores on the behavioral indicators the higher the PTG scores was expected indirectly. The results confirmed our expectations that significant positive correlation was established between the MI patients' PTG, and the total scores of behavioral indexes (dietary, sports, not gaining weight, not taking alcohol, no smoking) ($\underline{r}$ =22, $\underline{p}$ <.05). In detail, the MI patients' PTG showed significant positive correlation with sport activities ($\underline{r}$ =.16, $\underline{p}$ <.05), not smoking cigarette ($\underline{r}$ =16, $\underline{p}$ <.05), and not drinking alcohol ($\underline{r}$ =25, $\underline{p}$ <.001).

This result may be interpreted that the patients alter their behaviors apart from their psychological growth. Additionally, several paired sample t test analyses showed significant improvement in making dietary, doing sports, not gaining weight, not drinking alcohol, and not smoking after the heart disease than before. Despite showing significant improvement on the behavioral indicators, individuals reporting "higher behavior change", and "lower behavior change" were not significantly different from each other according to total PTGI scores when categorized this variable according to highest and the lowest 25^{th} percentile and removed the effect of gender. However, when looking at the factors of PTGI, the MI patients with higher behavior change had higher scores on the appreciation with life dimension than individuals with lower behavior change. The validity of the other factors should be assessed by means of other measures such as directly observing them in a natural environment and asking significant relatives.

As for spouses, the spouses' PTG, and any behavioral indicators ($\underline{r}$ =.12, n.s) were not significantly correlated with one another. In other words, the spouses did not make changes in any healthy behaviors into their lives after the MI patient suffered from a heart attack. However, Paired Sample t test results demonstrated that after the heart failure of patients, while spouses' behavior in dietary and exercising were significantly different from before the events, other indicators (not gaining weight, alcohol, and cigarette consumption etc.) did not differentiate before, and after the event. Moreover, for considering the total scores of behavior change (after the event minus before the event) individuals with "higher behavior change", and "lower behavior change" were not significantly different from each other according to both the total scores of PTGI and factors of PTGI, when controlling the effect of gender. Therefore, it was too difficult to

disregard reports of PTG as not really lived by their spouses. Similar interpretation was made by only Milam (2006) with different population, HIV patients. In his study, PTG scores, and the healthy behaviors of the HIV patients were not significantly correlated with each other. Therefore, he interpreted this finding as although the HIV patients reported significant PTG, they did not change the attitude towards adapting healthy behaviors in their lives. Hence, he accepted the HIV patients' PTG scores as perceptual. However, when considering the participants characteristics, most of them were coming from lower or moderate SES. Considering the behavioral indicators (such as exercising, following a diet plan etc.) may not be appropriate for spouses.

Lastly, asking open ended questions are recommended by the theoreticians in the literature (Park & Helgeson, 2006). Consequently, the three open ended questions (one neutral, one positive, and one negative consequence) were asked both to the patients, and their spouses. Before the analyses of the fifth hypothesis, content analyses were conducted to free responses of both patients, and their spouses. In order to test the three open ended questions, responses were classified by one graduate psychologist, and two psychologists (judges) tried to categorized responses into five categories namely positive ('I learn the value of life'), negative ('I have difficulty in walking'), mixture of positive and negative ('I feel better but have anxiety for the routine control') and fatalistic ('I think, The God helps me to recover'), and no opinion ('I do not know'). In order to see the effect of type of responds on the PTG, One Way ANOVA analyses were computed when removing the individuals with no opinion and fatalistic opinion in order to decrease Type I Error. However, the systematic group differences between the types of responds were not found both in the patients group, and in the spouses group.

After categorizing PTG as lower and higher PTG by means of standard deviations, both the MI patients and the spouses did not show significant difference. Nolen-Hoeksema and Davis (2004) highlighted that there is a risk of underestimation in the open ended questions. In other words, individuals may underestimate the positive consequences of the event when responding the open-ended questions. Besides, Park and Helgeson (2006) criticized open ended questions as not giving the complete picture of the growth. Despite those criticisms, there should be relationship between optimistic opinion, and growth responses. This relationship may be checked in the future studies.

Open ended questions were classified according to positive, negative, mixture of positive and negative, fatalistic and no opinion in the present study. In further researches, these open ended questions may be categorized as behavior related, emotion related and cognition related answers. Furthermore, open ended questions asking for positive aspects of the event may be classified according to dimensions of PTGI such as sense of personal strength, spiritual matter, and appreciation with life. This kind of classification may yield significant findings when examining the validity of self report measures.

4.3 Life Crises, and Personal Growth Model

In the present study, the need for testing the PTG models (Widows et al., 2005) that are previously emphasized in the literature was considered. Consequently, The Life Crises, and Personal Growth Model of Schaefer and Moos, one of the models requiring unintentional change, was tested twice with patients diagnosed as MI, and their spouses. Since models describing unintentional change involve events occurring suddenly

(O'Leary et al., 1998), MI can be accepted as a stressful experience occurring suddenly. The Structural Equation Modeling was used for testing these hypothesis of the present study since it allows reducing observed variables in a smaller number of latent variables (Schreiber et al., 2006), and testing the relationship between latent variables (Streiner, 2006).

4.3.1 Testing Life Crises, and Personal Growth Model for Patients

The three processes were used for testing life crises and personal growth model for the patients, namely; measurement model, model respecification, and testing the respecified model. Although the measurement model was adequate according to ratio between χ^2, and degrees of freedom, goodness of fit tests did not reveal significant findings. Surprisingly, the suggested role of number of children (.05), and marital quality in environmental resources, age (.02), sex (.16), and control (.11) in individual resources, time since diagnosis (.14) in the perception of the event, religious participation (-.12), and religious belief (-.23) after the event in the cognitive processing-coping were not established as expected. Model respecification yielded to remove the effect of number of children, and marital quality among environmental resources; age, sex, control, depression among individual resources; time since diagnosis among the perception of the event; religious participation, and belief after event, emotion, and problem focused coping among the cognitive processing-coping. Although the effect of these variables had been established such as marital quality, and PTG relationship (Weiss, 2004a) in a variety of studies, they did not found to be significant among the heart disease patients. Besides, individual resources to cognitive processing-coping

relationship was removed. After removal, the model fitted the data adequately in terms of χ^2 / df ratio (χ^2 /*df* = 1.78), and acceptable goodness of fit indexes (RMSEA=.072, CFI=.897, RFI=.736, IFI=.901). If the sample size could be larger, better results can be obtained according to goodness of fit indexes. One of the case sensitive measure of goodness of fit indexes PCFI (Schreiber et al., 2006) results showed (PCFI=.684) that the more the sample size the better in testing this model.

Consistent with the literature (O'Leary et al., 1998), social support from friend (.79), social support from significant other (.68), and social support from family (.58) played considerable role on the environmental resources. Those effects were not obtained in the Sheikh's (2004) research in which he compared the effects of social support on the development of PTG in heart disease survivors. Nevertheless, when looking at the variables, only variables related with social support had significant contribution on environmental factors largely social support from friends. Therefore, naming this variable as social support may be more appropriate. Additionally, commitment (.81), and control (.82) dimensions of psychological hardiness on individual resources was established in the present study. O'Leary and colleagues (1998) highlighted the critical value of hardiness on the individuals during stressful life experiences. Moreover, Britt and colleagues (2001) found that hardiness was associated with finding the meaning of job during peacekeeping mission in Bosnia with a group of soldiers. Besides, less likely investigated variable self esteem (.34) had significant contribution on this model, in spite of the fact that Siegel et al. (2005) did not find significant relationship among self esteem, and PTG in HIV/AIDS patients. Among the variables identifying the perception of the event prognosis of the disease had significant

contribution as recommended by Schaefer and Moos (1998). Having other disorder (-.24), and perception of threat (-.38) were negatively related with the perception of the event. Besides, while rumination (.94), hypervigilance (.93), and avoidance (.33) were related positively with cognitive processing-coping, indirect coping was related negatively (-.29). In other words, when individuals did not use indirect coping, they probably had higher PTG scores. On the other hand, when individuals' scores on the dimensions of cognitive processing-coping increased, their scores on PTG increased too.

According to direct effects, firstly link between environmental resources were related positively with PTG. Therefore, it was predictive of greater PTG responses. Similar results had been established in the literature with different samples such as HIV/AIDS caregivers (Cadell et al., 2003), and husbands of breast cancer survivors (Weiss, 2004a). Especially the role of social support was established in the previous findings. For instance, PTG was positively associated with general social support in HIV/AIDS caregivers (Cadell et al., 2003), and husbands of breast cancer survivors (Weiss, 2004a).

Secondly, individual resources were also related positively with PTG as expected previously according to the hypothesis and literature findings (Sheikh, 2004). When the individual resources increase, they were more likely to experience the positive outcomes after the traumatic events. Likewise expected by the theoreticians, hardiness components of challenge, and commitment (Linley, 2003), locus of control (Cohen et al., 1998b; Calhoun & Tedeschi, 1998b; Maercker & Herrle, 2003), and self esteem (Bower et al., 1998) had significant contribution on PTG. The effects of internal locus of control on growth responses of individuals suffering from Dresden bombing was established

previously (Maercker & Herrle, 2003). However, the effect of other variables on the growth response of the individuals is only suggested by the theoreticians. In more detail, the components of hardiness may give individuals an opportunity to see positive outcomes (Linley, 2003), and individuals may regain their self esteem after the traumatic life events (Bower et al., 1998).

Thirdly, both the environmental resources, and individual resources were related positively with the perception of the event as suggested by Schaefer and Moos (1998). Thirteen percent of variance in perception of the event was explained by these two variables. Individuals may appraise the traumatic event as less threatened (one of the variables in the perception of the event) by means of environmental and individual resources such as hardiness (Bonanno, 2004). Fourthly, likewise Sheikh (2004) recommended, the perception of the event were related positively with cognitive processing-coping despite it explained only 8% of variance. Fifthly, cognitive processing-coping was related with PTG. As found previously (Calhoun et al., 2000; Weinrib et al., 2006), the greater the cognitive processing-coping, and event related rumination, the greater the stress related growth. Cognitive appraisal-coping explained fewer variance (4% of variance) in the present study than found in the previous study (%6) conducted with the sample of HIV/AIDS patients (Siegel et al., 2005).

According to indirect effects, both environmental resources (Regression Estimate=.15, $p < .05$), and individual resources demonstrated indirect effects on PTG (Regression Estimate=-.12, $p < .05$) via the perception of the event, and cognitive processing-coping. This effect was suggested previously by Schaefer and Moos (1998), and had been tested by Siegel et al. (2005) in the group of HIV/AIDS patients, and

Widows and colleagues (2005) in the group of BMT patients. However, there is a difference between these empirical studies, and the present study. In more detail, the order of variables, and types of variables selected in those empirical researches were different from the present study. For instance, the sequence of variables included in the Siegel and colleagues' (2005) study was demographic variables, affective states, cognitive coping, stressor characteristics, individual resources, and social resources.

In the present study, the larger variance on PTG (14%) was explained than the previous studies found. Widows and colleagues (2005) established that the effect of environmental factors (social support), the perception of the event (psychological distress), and cognitive processing-coping (approach coping) was accounted 4% of the variance in the PTG. Despite obtaining smaller contribution of both environmental, and individual resources on PTG, this research found satisfactory results for proving the existence of this model with a group of MI patients when tested this model by SEM. Schaefer and Moos (1998) suggested explained variance by variables in the life crises, and personal growth model may differ according to types of the major life events. Therefore, this model should be tested in the future research with different types of crises.

4.3.2 Testing Life Crises, and Personal Growth Model for Spouses

After following three processes namely; measurement model, model respecification, and testing the respecified model, life crises, and personal growth model for spouses were tested. Even though the measurement model was adequate according to ratio between χ^2, and degrees of freedom, goodness of fit tests did not reveal significant

findings. Interestingly, suggested role of number of children (.03), and number of children living with family smaller than the age of 18 (-.09) in the environmental resources; sex (.04) in the individual resources; problem focused coping (.08), religious participation after the event (.03) in the cognitive processing-coping were not established as anticipated. When removing the effect of number of children,, and number of children living with family among environmental resources; sex effect among individual resources; problem focused coping, and religious participation after event among the cognitive processing-coping in terms of model respecification, the model fitted the data adequately in terms of χ^2 / df ratio ($\chi^2/df = 2.12$), and acceptable goodness of fit indexes (RMSEA=.086, CFI=.706, IFI=.720). Better results can be obtained according to goodness of fit indexes in terms of increasing the sample size of the spouses. One of the case sensitive measure of goodness of fit indexes PCFI (Schreiber et al., 2006) results demonstrated (PCFI=.587) that the bigger the sample size is the better in testing this model.

In agreement with the literature (O'Leary et al., 1998), and the findings obtained from the patients in the present study, social support from friend (.96), social support from significant other (.53), social support family (.33), and marital quality (.13) played considerable role on the environmental resources. These results confirmed previous findings that general social support, and marital quality had been related concepts with PTG in spouses of cancer survivors (Weiss, 2004a). Moreover, locus of control (-.68), control (.61), self esteem (.55), depression (-.49), challenge (.36) commitment (.36), and age (-.20) were related with the individual resources. Among the variables identifying the perception of the event prognosis of the disease (-.56) had significant contribution as

recommended by Schaefer and Moos (1998). In agreement with the findings obtained from the patients in the present study, having other disorder (.22), and perception of threat (.37) were positively related with the perception of the event while time passed since diagnosis was negatively related (-.21). These findings confirmed previous results that time since diagnosis, and observed stressfulness of event had been related concepts with PTG in spouses of cancer survivors (Weiss, 2004a). Moreover, while hypervigilance (.94), rumination (.87), avoidance (.43), emotion focused coping (.34), and religious belief (.14) were related positively with cognitive processing-coping, indirect coping was related negatively (-.34). In other words, if individuals had higher scores on the dimensions of impact of event scale (rumination, hypervigilance, and avoidance), emotion focused coping, and religious belief, and lower scores on indirect coping, PTG scores increased.

According to direct effects, firstly environmental resources were related positively with PTG. Therefore, likewise established previously with different samples such as HIV/AIDS caregivers (Cadell et al., 2003), and husbands of breast cancer survivors (Weiss, 2004a), it was predictive of greater PTG responses despite explained variance was small (3%) such as obtained in the patients model as well (3%). Secondly, individual resources were related positively with PTG as expected according to the hypothesis. If individuals had higher level of individual resources, they may probably experience the positive outcomes after the traumatic events. Likewise expected by the theoreticians for the trauma survivors, all hardiness components (control, challenge, and commitment) (Linley, 2003), locus of control (Cohen et al., 1998b; Calhoun & Tedeschi, 1998b; Maercker & Herrle, 2003), self esteem (Bower et al., 1998), depression (Park &

Helgeson, 2006), and age (Bellizzi, 2004; Bellizzi & Blank, 2006; Lechner & Antoni, 2004; Polatinsky & Esprey, 2000; Powel et al., 2003; Sharon et al., 2004) had significant contributions on the spouses' PTG as well, and 2% of variance on PTG was explained by all these variables. In the patients' model, these individual resources explained same (2%) of variance on PTG. Thirdly, both the environmental resources, and individual resources were related positively with the perception of the event as suggested by Schaefer and Moos (1998). Thirty-five percent of variance in the perception of the event was explained by these two variables, while only 13% of variance was explained by these variables in the patient model. Fourthly, likewise Sheikh (2004) recommended, perception of the event explained 20% variance in the cognitive processing-coping, and were related positively with cognitive processing-coping. In the patient model, only 8% of variance in the cognitive processing-coping was explained by the perception of the event. Fifthly, cognitive processing-coping was related with PTG, and explained 15% of variance which was consistent with the previous findings with the samples of trauma survivors (e.g., Calhoun et al., 2000; Weinrib et al., 2006). In the patient model, this variance was small (4%). In other words, the greater the cognitive processing-coping is the greater the stress related growth.

When looking at the indirect effects, individual resources demonstrated indirect effects on PTG (Regression Estimate=-.27, $p < .05$) via the perception of the event, and cognitive processing-coping. 26% of variance was explained by individual resources through these variables. However, environmental resources did not show significant indirect effects on PTG (Regression Estimate=.9, p = n.s) through these variables. These analyses revealed satisfactory results for proofing the existence of the indirect effect of

the only individual resources with a group of spouses' of MI patient's when tested this model by SEM. Environmental factors had not been found as significant resource explaining PTG in Francis (2004) study also.

4.3.3 Comparison of Patients, and their Spouses Models with each other

When looking at the final models, there were many differences between spouses' model, and patients' model. Both patients' and spouses' models had many overlapping, and non-overlapping aspects.

Firstly, when comparing the goodness of fit, χ^2/df ratio, patients' model had more adequate values. For instance while the χ^2 ratio was below the suggested 2:1 ratio ($\chi^2/df = 1.78$) in the MI patients' model, it was below the suggested 3:1 ratio ($\chi^2/df = 2.16$) in the spouses' model. This finding may be due to the number of participants since SEM is sensitive to number of individuals participating in the analyses. Relatively fewer spouses were participated in this study when compared patients.

Secondly, when comparing in terms of the number of observed variables, the spouses' model consisted of more variables that contribute to the model than the MI patients'. The effect of marital quality on the environmental resources, the effect of age, depression, and control on the individual resources, the effect of time since diagnosis on the perception of the event, the effect of religious belief after event, and emotion focused coping on the cognitive processing-coping could be observed only in the spouses' model.

Thirdly, in terms of the variance explained, the spouses' model yielded more advantages findings. While 35% of variance explained by individual, and personal

resources in the spouses' model, 13% of variance explained by the same factors in the MI patients' group. Moreover, while 20% variance in the cognitive processing-coping was explained by perception of the event in the spouse group, same variance was found as 8% in the MI patients' model. Consequently, while 14% of variance in PTG was explained by three variables; cognitive appraisal of event, individual resources, and environmental resources in the patients' model, this ratio was 21% in the spouses' model.

Lastly, when comparing the indirect effects, the MI patients' model was more advantages than the spouses' model. In the MI patients' model both the individual and environmental factors had significant contribution on PTG via the perception of the event, and cognitive processing-coping. On the other hand, in spouses' model, only the individual resources had indirect effect on PTG.

4.4 General Discussion of the Study: Strengths, and Limitations

In order to obtain systematic frame work (Mc Millen, 2004), testing the specific models was suggested previously. Schaefer and Moos model helps conceptual understanding of how PTG occurs among the individuals by considering the effect of environmental and individual resources, the characteristics of the traumatic event, and cognitive processing-coping on PTG. Besides, according to McVeigh (2005), this model produced the need of looking traumatic experience in a more mature way. Furthermore, this model identifies factors related with PTG rather than only describing the term of growth. A major strength of the model is that it yields a comprehensive viewpoint to examine various direct and indirect relationships between the variables.

One weakness of the model is that, the link between environmental and individual resources is not set by the theoreticians. AMOS specification search program recommends considering covariance between these variables which was found as .26 in the MI patients' model, .20 in the spouses' model. Further studies may consider this covariance.

While this study has an important contribution on the determinants of PTG in both patients diagnosed with MI, and their spouses, small sample size was the major limitation in the present study. If the sample size of the present study is increased, larger variances on PTG may be explained by these variables.

Issues of the time course of PTG could not be investigated in the present study, since the study design was prepared as cross-sectional. Therefore, this research could not clarify or support the relationship between variables according to time frame. Longitudinal researches are needed to examine how variables contribute the development of PTG across time. Besides, using a cross-sequential design wherein data are obtained from each subject during at least one follow-up assessment with a sample of diverse population will be more appropriate in order to clarify relationship between individual and environmental resources, the perception of the event, and cognitive processing-coping on PTG.

Selecting patients without considering their time passed since diagnosis is another limitation in the present study. Although asking them whether they are suffering from any other traumatic experience, PTG reactions may differ. In both the patients', and the spouses' model, when the time increased, PTG reactions diminished. If the time since diagnosis is limited, it may yield different results.

Gender effect could not be measured in the present study due to having relatively fewer female MI patients, and male spouses of MI patients. The proportion of male to female patients was low. Thus, the study needs to be replicated with more representative proportions of males, and females.

Additionally, the findings of this study may generalizable only to population of individuals from lower SES with a history of heart disease, and their spouses living in a small city in Turkey. Determinants of PTG may vary in the other samples, and in the other cultures. Therefore, results should be interpreted only in the context of traumatic exposure of heart disease. In order to assess context dependent and common across a broad range of trauma lived in various cultures, Schaefer and Moos model should be investigated in a variety of populations. Further research is necessary using different sample, and selecting the other members in the family (i.e., children) that may confirm to this model.

Further efforts to identify other factors that are not addressed in this study that might influence PTG seemed to be important, such as Type A personality, self efficacy (Calhoun & Tedeschi, 1998b; Tedeschi et al., 1998), introversion- extraversion (Sheikh, 2004), optimism (Calhoun & Tedeschi, 1998b), openness to experience, conscientiousness, agreeableness (Tedeschi, & Calhoun, 2004; Aldwin, & Levenson, 2004), and hopefulness (Tennen & Affleck, 1998). These factors should be studied in the future researches.

4.5 Implications

Questioning the effect of the relationships between individual and environmental resources, perception of the event and cognitive processing-coping may reveal potential implications in the clinical practice. The findings of this study demonstrated a group of variables were associated with PTG responses in couples who experienced heart failure. The effect of individual (self esteem, challenge, locus of control), and environmental resources (social support from friend, family, and significant others) on PTG was established via the perception of the event (having other disorder, perceived threat, and prognosis), and cognitive processing-coping (rumination, hypervigilance, avoidance, and indirect coping) among the patients. Psychologist must carefully examine these variables (Goldsmith, et al., 2004), and psychological interventions considering these variables may improve the quality of life after the heart disease.

Therapists should encourage providing an environment in which the posttraumatic growth is encouraged. Both the patients' model and the spouses' model yielded the importance of social support on PTG according to results. For this respect, he/she may work for obtaining a collaborative atmosphere between patient, and caregiver, and between patient, and doctors. Briefly, therapist should convey their interventions not only the heart disease survivors, but also all family members.

In addition to these, how the other members in the family (e.g., spouses, and children) effected by the event should be also evaluated by the professionals. In this respect, spouses were assessed. According to findings, individual resources (locus of control, challenge, commitment, control, self esteem) had significant contribution on PTG through the perception of the event (time since diagnosis, having disorder,

perceived threat, challenge), and cognitive processing-coping (hypervigilance, rumination, avoidance, emotion focused coping, and indirect coping, religious belief). Interventions may be yielded that include adaptive personality traits (Calhoun &Tedeschi 1998b; Cryder, Kilmer, Tedeschi, & Calhoun, 2006). Even, psycho-educational interventions may be helpful for spouses as well as patients. For instance, by being alert to the possibility that individuals may experience positive parts after the crises, he/she may start to consider how to obtain positive parts of the event. In the interviews, during the data collection process, some patients, and their spouses surprised, and smiled after reading the items of PTGI, and expressed that they did not consider the positive parts of the events before asked. After the interview, one patient pointed that he started to consider how his life could be better.

Being affected from any traumatic events depends on the individuals. In other words, the effect of the traumatic events on the individuals may vary from individuals to individuals. Various factors should contribute to positive, negative, and the mixture of negative and positive experiences (Calhoun & Tedeschi, 2004; Jang, 2006).

As a summary, in investigating factors that promote PTG across couples who experienced heart failure of one, these results have implications for interventions designed to facilitate PTG. Since the physical recovery of the patients may depend on psychological factors, interventions should play considerable role on these patients. Further empirical research conducted with the different population, and large sample size can provide clearer understanding to PTG.

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APPENDICES

APPENDIX A: CORRELATIONS TABLES

Correlations between the variables were presented in the separate tables. Correlations between the variables in the MI patients sample were presented in the Table 13. Correlations between the variables in the spouses sample were presented in the Table 14.

Table 14 Pearson Correlations of PTG and study variables in MI Patient Group

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.Age	-.01	.27**	.01	-.05	.14*	-.08	-.04	.07	-.01	.09	.09	.05	.04	-.02	-.07	.14	.01
2.Gender	1	-.03	.01	.16*	.05	.01	.15	.15	.16*	.18	.15	.10	.03	.18*	.08	.00	-.19*
3.Num.child		1	.01	-.23**	-.04	.06	-.05	.09	-.01	.14	.05	-.04	-.06	-.02	-.09	.06	.16*
4.Child Living (18)			1	.01	.01	.01	.01	.01	.02	.01	.01	.01	.01	.01	0.02	.01	.01
5.Marital quality				1	.03	-.14*	.20**	-.12	-.07	-.16*	.02	.08	-.04	.03	.12	-.24**	.01
6. Time Since Diag.					1	-.07	.13	.03	.03	-.07	.04	.00	-.02	.03	.02	.04	.04
7. Perceived Threat						1	-.34	.14	.07	.03	.06	-.10	-.06	.05	.05	.13	-.15
8. Perceived Prog.							1	-.09	-.03	-.01	.00	.12	.15	.08	-.08	-.13	.11
9. Dietary								1	.36**	.56**	.34**	.37**	.09	.04	-.07	.09	.00
10. Sport Activities									1	.48**	.24**	.15	.26**	.11	.05	-.05	.03
11. Not gaining weight										1	.30**	.33**	.07	.15	-.08	.18*	.07
12. No Smoking											1	.54**	.08	-.02	.19*	.08	-.05
13. No Alcohol												1	.12	.03	.11	.11	.09
14. Spouse Relation													1	.22**	.13	.03	.07
15. Children Relation														1	-.26**	-.05	.03
16. Extended Family															1	-.08	-.07
17. Economical Status																1	.00
18. PTG Patient																	1

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 14 (continued)

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1.Age	.01	-.09	.11	.01	.11	-.01	-.01	-.06	.12	.01	.03	-.04	-.03	-.05	-.02	.09	-.05
2.Gender	-.13	-.17*	-.23**	-.20**	-.14	-.02	-.09	-.14	-.07	-.08	-.10	-.12	-.10	-.09	-.09	-.07	.04
3.Num.child	.14	.01	.20*	.21**	.22**	.20**	.05	.09	.04	.11	.02	.10	.03	.14	.08	.28**	.21**
4.Child Living (18)	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
5.Marital quality	.04	-.01	-.09	.09	-.05	.09	.03	.04	-.01	.08	.10	-.03	.04	-.07	-.04	.21**	.24**
6. Time Since Diag.	-.02	.09	.08	.04	.00	.06	.02	.03	.08	.05	.03	-.21**	-.24**	-.07	-.19	.03	.06
7. Perceived Threat	-.12	-.15	-.07	-.20	-.06	-.15	-.08	-.03	.04	.01	.00	.06	.14	-.13	.13	-.14	-.02
8. Perceived Prog.	.11	.04	.09	.20**	.02	.16*	.08	.04	.00	.05	-.04	-.23**	-.24**	-.05	-.25**	.06	.18*
9. Dietary	-.04	.01	.12	.04	-.07	.04	.02	.07	.22**	-.01	.03	.03	.03	.04	.01	.06	.11
10. Sport Activities	-.02	.05	.10	.07	-.05	.01	.09	.12	.21**	.15	.15	.00	-.03	.02	.01	.03	.05
11. Not gaining weight	.04	.11	.13	.06	-.05	.12	.09	.11	.23**	.06	.11	.10	.07	.05	.14	.06	.04
12. No Smoking	-.05	-.06	.01	-.03	-.10	.01	.00	.06	.12	.05	.06	-.01	.02	-.06	.01	.08	.11
13. No Alcohol	.06	.10	.15	.13	-.08	.00	.08	.10	.18	.04	.07	-.04	-.06	.03	-.07	.12	.17*
14. Spouse Relation	.07	.00	.19*	.09	.02	.02	.19*	.06	.24**	.08	.22**	.06	.02	.12	.00	.00	-.01
15. Children Relation	.02	.01	.05	.04	.01	.00	-.08	-.08	-.02	-.12	-.06	-.02	-.05	.04	-.02	.03	.06
16. Extended Family	-.07	-.04	-.02	-.08	-.06	-.03	.00	.05	.08	-.03	.04	-.05	.06	-.19*	.01	-.17*	-.10
17. Economical Status	.04	.02	-.03	-.03	-.06	-.07	.00	-.02	-.04	-.05	.07	.07	.01	.05	.12	-.03	-.01
18. PTG Patient	.93**	.89**	.81**	.89**	.77**	.76**	.60**	.51**	.40**	.46**	.49**	.28**	.18*	.34**	.17*	.32**	.15

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 14 (continued)

	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
1.Age	.21**	-.08	.10	.04	-.02	.18*	.02	.06	-.03	.03	.06	-.12	.12	.27**	-.02	.26**	-.04
2.Gender	-.18	.11	-.08	-.01	-.10	-.08	.17	.19	.13	.07	-.31	.11	-.16*	-.14	-.10	-.11	-.07
3.Num.child	.25**	-.20	.07	.00	-.01	.14	.03	.03	-.09	.12	.04	.10	.04	.03	.05	.04	-.10
4.Child Living (18)	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
5.Marital quality	.09	-.01	.11	.14	.10	.04	.22**	.21**	.07	.19*	-.12	.10	-.27**	.02	.00	-.02	.02
6. Time Since Diag.	.01	-.06	-.04	-.05	-.10	.02	.05	.03	.00	.06	-.23**	-.09	.02	-.11	.10	-.09	.07
7. Perceived Threat	-.14	.04	-.14	-.15	-.02	-.14	-.16*	-.26**	.14	-.24**	-.10	.12	.17*	-.05	.06	-.14	-.05
8. Perceived Prog.	-.08	.01	.25**	.12	.20**	.24**	.22**	.29**	.02	.21**	-.15*	.00	-.46**	-.07	-.04	-.13	.06
9. Dietary	-.01	-.06	-.11	.08	-.13	-.15	.18*	.18*	.10	.11	-.19*	.24**	.05	-.31**	.03	-.11	-.03
10. Sport Activities	-.01	.02	-.14	-.05	-.13	-.14	.14	.11	.16	.04	-.17*	.00	.05	-.07	.14	.04	-.02
11. Not gaining weight	.00	-.03	-.03	.03	.00	-.08	.10	.10	.10	.02	-.08	.06	.14	-.20**	.00	-.12	.02
12. No Smoking	.00	.01	-.08	-.07	-.10	-.05	.13	.23**	.08	.00	-.27	.09	.06	-.27**	.00	-.08	-.10
13. No Alcohol	.04	.01	-.05	.02	-.04	-.08	.14	.27**	-.03	.08	-.19	.09	-.09	-.31**	-.07	-.08	-.01
14. Spouse Relation	.01	.04	.10	.05	.08	.08	.14	.15	.06	.08	.01	-.03	-.05	-.11	.06	.01	.05
15. Children Relation	.05	-.07	-.02	.07	.00	-.06	.10	.17	-.04	.11	.01	.00	.01	.00	.05	.01	.09
16. Extended Family	-.20*	.10	-.08	-.02	-.13	-.06	-.09	-.08	.11	-.20	-.13	-.11	.00	-.07	-.02	-.10	-.19*
17. Economical Status	-.06	.02	.02	-.06	.05	.02	-.03	-.03	.01	-.04	-.01	-.03	.27**	.05	-.12	.05	-.09
18. PTG Patient	.32**	-.34**	.21**	.10	.24**	.16*	.15	.21**	-.12	.23**	.15	-.11	-.05	.07	.15	-.06	.11

*Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 14 (continued)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
19. Impr. Rel.	.01	-.09	.11	.01	.11	-.01	-.01	-.06	.12	.01	.03	-.04	-.03	-.05	-.02	.09	-.05	.93**	1
20.Pos.Life	-.13	-.17	-.23	-.20	-.14	-.02	-.09	-.14	-.07	-.08	-.10	-.12	-.10	-.09	-.09	-.07	.04	.89**	.75**
21. App.Life	.14	.01	.20*	.21**	.22**	.20**	.05	.09	.04	.11	.02	.10	.03	.14	.08	.28**	.21**	.81**	.66**
22. S.per Str.	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.89**	.79**
23. Sp. Dev.	.04	-.01	-.09	.09	-.05	.09	.03	.04	-.01	.08	.10	-.03	.04	-.07	-.04	.21**	.24**	.77**	.67**
24. SPTG	-.02	.09	.08	.04	.00	.06	.02	.03	.08	.05	.03	-.21	-.24	-.07	-.19	.03	.06	.77**	.73**
25. SImpro	-.12	-.15	-.07	-.20	-.06	-.15	-.08	-.03	.04	.01	.00	.06	.14	-.13	.13	-.14	-.02	.60**	.59**
26. Sp.Pos.	.11	.04	.09	.20**	.02	.16*	.08	.04	.00	.05	-.04	-.23	-.24	-.05	-.25	.06	.18*	.51**	.43**
27. Sp.App.	-.04	.01	.12	.04	-.07	.04	.02	.07	.22**	-.01	.03	.03	.03	.04	.01	.06	.11	.40**	.36**
28. Sp.Stre	-.02	.05	.10	.07	-.05	.01	.09	.12	.21**	.15	.15	.00	-.03	.02	.01	.03	.05	.46**	.41**
29. Sp.Spiri.	.04	.11	.13	.06	-.05	.12	.09	.11	.23**	.06	.11	.10	.07	.05	.14	.06	.04	.49**	.42**
30. Imp	-.05	-.06	.01	-.03	-.10	.01	.00	.06	.12	.05	.06	-.01	.02	-.06	.01	.08	.11	.28**	.25**
31. Rumin.	.06	.10	.15	.13	-.08	.00	.08	.10	.18	.04	.07	-.04	-.06	.03	-.07	.12	.17	.18**	.19*
32. Avoid	.07	.00	.19*	.09	.02	.02	.19*	.06	.24**	.08	.22**	.06	.02	.12	.00	.00	-.01	..34**	.28**
33. Hyper	.02	.01	.05	.04	.01	.00	-.08	-.08	-.02	-.12	-.06	-.02	-.05	.04	-.02	.03	.06	.17*	.15
34. Coping	-.07	-.04	-.02	-.08	-.06	-.03	.00	.05	.08	-.03	.04	-.05	.06	-.19	.01	-.17	-.10	.32**	.29**
35. Problem	.04	.02	-.03	-.03	-.06	-.07	.00	-.02	-.04	-.05	.07	.07	.01	.05	.12	-.03	-.01	.15	.11
36. Emotion	.93**	.89**	.81**	.89**	.77**	.76**	.60**	.51**	.40**	.46**	.48**	.28**	.18*	.34**	.17*	.32**	.15	.32**	.30**

*Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 14 (continued)

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
19. Impr. Relation	0,75**	0,66**	0,79**	0,67**	0,73**	0,59**	0,43**	0,36**	0,41**	0,42**	0,25**	0,19*	0,28**	0,15	0,29**	0,11	0,30**
20.Possibilities of Life	1	0,66**	0,74**	0,63**	0,68**	0,53**	0,53**	0,34**	0,39**	0,43**	0,24**	0,14	0,32**	0,14	0,26**	0,11	0,25**
21. Appreciation Life		1	0,71**	0,63**	0,60**	0,50**	0,42**	0,47**	0,40**	0,46**	0,27**	0,17*	0,32**	0,18*	0,27**	0,15	0,28**
22. S. Persn Streng			1	0,59**	0,63**	0,53**	0,46**	0,32**	0,42**	0,38**	0,22**	0,13	0,30**	0,12	0,33**	0,24**	0,26**
23. Spiritual Devel.				1	0,66**	0,40**	0,36**	0,33**	0,36**	0,48**	0,24**	0,14	0,26**	0,18*	0,25**	0,02	0,33**
24. Sp PTG P. Patient					1	0,56	0,49**	0,41**	0,42**	0,51**	0,30**	0,22**	0,32**	0,21**	0,37**	0,23**	0,35
25. Sp.Impro. Relat.						1	0,78**	0,64**	0,78**	0,71**	0,20*	0,16	0,22**	0,11	0,31**	0,18**	0,26
26. Sp.Possibil of Life							1	0,61**	0,74**	0,69**	0,24	0,22**	0,18*	0,19*	0,31**	0,22**	0,26
27. Sp.Apprc. for Life								1	0,67**	0,71**	0,26**	0,26**	0,14	0,23**	0,17*	0,00	0,23**
28. Sp.Sen. Pers Stre									1	0,67	0,17	0,13	0,20	0,09	0,31	0,18*	0,26**
29. Sp.Spiri. Develop.										1	0,26	0,21	0,20	0,22**	0,28	0,08	0,28
30. Impact of event											1	0,90**	0,65**	0,89**	0,22**	0,16	0,27**
31. Rumination												1	0,30**	0,87**	0,14	0,05	0,21**
32. Avoidance													1	0,30**	0,38**	0,36**	0,34**
33. Hypervigilance														1	0,03	-0,03	0,12
34. Coping															1	0,73**	0,82**
35. Problem f. Coping																1	0,31**
36. Emotion f. Coping																	1

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 14 (continued)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
19. Impr. Relation	-.36**	.24**	.12	.28**	.17*	.11	.17*	-.11	.19*	.14	-.13	-.01	.08	.11	-.06	.09
20.Possibilities of Life	-.25**	.14	.04	.17	.11	.13	.15	-.07	.20**	.14	-.14	-.07	-.01	.14	-.10	.12
21. Appreciation Life	-.28**	.16*	.08	.12	.14	.18*	.26**	-.09	.22**	.10	.00	.00	.06	.13	-.05	.03
22. S. Persn Streng	-.29**	.21**	.10	.22**	.17*	.26**	.29**	-.04	.31**	.05	-.03	-.15	.05	.12	-.09	.06
23. Spiritual Devel.	-.27**	.13	.07	.18*	.08	-.09	.02	-.26	.05	.28	-.13	.04	.14	.20**	.14	.22**
24. Sp PTG P. Patient	-.42**	.20**	.16*	.18*	.13	.14	.20	-.14	.23**	.05	-.07	-.04	.00	.20**	-.11	.18*
25. Sp.Impro. Relat.	-.28**	.15	.10	.10	.14	.21**	.19*	.07	.19*	-.03	.01	.02	-.06	.21**	-.08	.05
26. Sp.Possibil of Life	-.24**	.04	.06	-.03	.07	.16	.17*	.04	.13	.00	.04	.06	-.05	.24**	-.13	.05
27. Sp.Apprc. for Life	-.21**	.01	.10	-.02	-.02	.01	.09	-.10	.05	.08	.00	.17*	-.14	.10	-.06	.06
28. Sp.Sen. Pers Stre	-.19**	.06	.06	.04	.05	.22**	.20**	.09	.19	-.02	.14	.02	-.09	.27**	-.05	.01
29. Sp.Spiri. Develop.	-.17**	-.03	-.03	-.02	-.03	.01	.08	-.12	.06	.15	-.03	.15	.00	.23**	.07	.16
30. Impact of event	-.38**	-.01	.04	.06	-.09	.05	.09	-.16*	.17*	.14	.08	.41**	.06	.03	.00	.09
31. Rumination	-.28**	-.05	.00	.04	-.10	-.01	.00	-.10	.07	.11	.10	.42	.12	.01	.00	.10
32. Avoidance	-.40**	.05	.10	.07	-.02	.21**	.27**	-.20**	.38**	.12	.03	.08	-.07	.10	.02	.07
33. Hypervigilance	-.25**	-.03	.01	.04	-.09	-.08	-.05	-.09	-.04	.12	.05	.51**	.09	-.03	-.03	.03
34. Coping	-.43**	.07	.10	.04	.05	.37**	.41**	-.11	.48**	-.07	.19*	-.18*	.06	.14	.16*	.25**
35. Problem f. coping	-.37**	.10	.16*	.08	.02	.57**	.46**	.23**	.52**	-.39**	.32**	-.30**	-.15	.12	-.01	.18*
36. Emotion f. coping	-.55**	.06	.07	.01	.08	.09	.25**	-.35**	.29**	.22**	.03	.02	.25**	.09	.26**	.22**

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 14 (continued)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
37.Indirect cop	1	-.24**	-.23**	-.21**	-.15	-.25**	-.30**	.12	-.36	.03	-.07	-.06	-.07	-.04	-.10	-.18*
38. Perce. Soc.support		1	.64**	.82**	.86**	.21**	.13	.02	.28**	.00	.09	-.26**	.13	-.05	.01	.13
39. Family Support			1	.1**	.32**	.23**	.18*	.06	.24**	-.03	.06	-.16*	.17*	-.05	.04	.09
40. Friend Support				1	.54**	.14	.04	.03	.21**	.02	.11	-.22**	.06	-.05	.01	.17*
41. Significant support					1	.13	.09	-.04	.22**	.03	.05	-.21**	.11	-.02	-.02	.06
42. Hardiness						1	.79**	.54**	.80	-.47**	.38**	-.39**	-.15	-.07	.05	.03
43. Commitment							1	.09	.66**	-.30**	.23**	-.34**	-.10	-.07	.15	.01
44. Control								1	.03	-.50**	.25**	-.14	-.25**	-.02	-.21**	-.03
45. Challenge									1	-.21**	.32**	-.35**	.02	-.07	.17*	.09
46. Locus of control										1	-.29	.23**	.33**	.09	.19	.06
47. Self esteem											1	-.22**	-.16*	.10	-.01	.02
48. Depression												1	.01	.09	.04	.00
49. Religi. Part before													1	-.09	.39**	.03
50. Religi. Part. after														1	.02	.36**
51. Religi. Belief before															1	.20**
53. Religious belief after																1

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' PTG Perceived by Patient in Improved Relationship; 26. Spouses' PTG Perceived by Patient in New Possibilities for One's Life; 27. Spouses' PTG Perceived by Patient in Appreciation for Life; 28. Spouses' PTG Perceived by Patient in Sense of Personal Strength; 29. Spouses' PTG Perceived by Patient in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 15 Pearson Correlations of PTG and study variables in the spouse group

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.Age	.20**	.33**	.01	-.22**	.09	-.02	.06	-.05	.02	.24**	.01	.09	-.12	-.04	-.27**	.06	-.01
2.Gender	1	.04	.01	-.13	-.03	-.03	.00	-.01	.02	.07	.16*	.04	.17*	.00	.02	.08	.02
3.Num.child		1	.01	-.10	-.04	.17*	-.13	-.14	-.06	.08	-.16*	-.08	-.08	-.05	-.07	.07	.08
4.Child Living (18)			1	.02	.01	.02	.01	.01	.01	.03	.01	.01	.02	.01	.01	.03	.01
5.Marital quality				1	-.10	.15	.16*	-.03	.06	-.02	.05	-.08	-.12	.09	.14	-.17*	-.02
6. Time Since Diag.					1	-.13	.07	-.04	-.05	-.03	-.06	-.03	.08	.07	-.01	.03	.12
7. Perceived Threat						1	-.27**	-.04	-.05	-.07	-.13	-.16	-.03	-.01	.19	.02	-.01
8. Perceived Prog.							1	.10	.05	.06	.13	.18*	-.06	.05	-.05	.11	.07
9. Dietary								1	.25**	.25**	.07	.19*	.06	-.06	-.20	.03	.03
10. Sport Activities									1	.40**	.10	.08	-.08	.01	.08	-.12	.05
11. Not gaining weight										1	.29**	.29**	.05	.03	-.08	-.09	-.08
12. No Smoking											1	.18*	.19*	.18*	-.06	.03	.11
13. No Alcohol												1	.24**	.19*	-.13	.20**	.04
14. Spouse Relation													1	.29**	.06	.11	.15
15. Children Relation														1	.12	.17*	.21**
16. Extended Family															1	.01	.09
17. Economical Status																1	.10
18. PTG Spouse																	1

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 15 (continued)

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1.Age	.04	.00	-.14	.04	.02	-.03	.04	.00	.04	-.14	.02	-.03	-.07	.05	-.04	.02	-.15
2.Gender	.00	.10	-.07	.03	.02	.11	.00	.10	.03	-.07	.02	-.03	-.07	.08	-.08	.01	.01
3.Num.child	.11	.08	-.02	.02	.11	.08	.11	.08	.02	-.02	.11	.15	.10	.12	.16*	.10	-.11
4.Child Living (18)	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
5.Marital quality	-.07	-.07	.06	.06	.01	.02	-.07	-.07	.06	.06	.01	-.01	.01	.03	-.07	.06	.18
6. Time Since Diag.	.14	.11	.11	.08	-.02	.04	.14	.11	.08	.11	-.02	-.06	-.07	.00	-.07	.04	.04
7. Perceived Threat	-.05	.00	.06	.00	.00	.00	-.05	.00	.00	.06	.00	.12	.17*	-.03	.12	-.01	-.02
8. Perceived Prog.	.14	-.03	.05	.17*	-.08	.01	.14	-.03	.17*	.05	-.08	-.19*	-.16*	-.09	-.21	-.06	.06
9. Dietary	.00	.02	.06	.04	.01	.07	.00	.02	.04	.06	.01	-.08	-.10	-.06	-.02	.08	.13
10. Sport Activities	.03	.04	.05	.08	.02	.05	.03	.04	.08	.05	.02	.06	.08	-.08	.12	.05	-.06
11. Not gaining weight	-.05	-.05	-.06	-.05	-.16*	-.02	-.05	-.05	-.05	-.06	-.16*	-.02	-.08	.02	.05	-.05	-.10
12. No Smoking	.07	.12	.08	.10	.10	.12	.07	.12	.10	.08	.10	-.07	-.07	.00	-.09	.09	.06
13. No Alcohol	.11	.00	-.02	.02	-.01	.06	.11	.00	.02	-.02	-.01	-.04	-.05	-.01	-.03	-.04	-.01
14. Spouse Relation	.17*	.08	.13	.11	.12	.15	.17*	.08	.11	.13	.12	-.01	-.01	-.02	.00	.16	.20**
15. Children Relation	.17*	.21**	.10	.28	.19*	.23**	.17*	.21	.28	.10	.19*	.15	.11	.09	.16*	.21**	.08
16. Extended Family	.07	.12	.09	.00	.07	.11	.07	.12	.00	.09	.07	.10	.13	.07	.05	.00	-.05
17. Economical Status	.14	.07	.02	.09	.07	.10	.14	.07	.09	.02	.07	.07	.05	.05	.09	.00	-.08
18. PTG Spouse	.92**	.90**	.79**	.79**	.80**	.75**	.92**	.90**	.79**	.79**	.80**	.40**	.30**	.40**	.30**	.36**	.27**

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table 15 (continued)

	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
1.Age	.26**	-.10	.04	.10	-.01	.04	-.09	.02	-.15	-.05	.15	-.15	.12	.23**	-.14	.07	-.03
2.Gender	.01	-.05	-.11	.00	-.06	-.16*	.10	.10	.05	.07	.02	.09	.04	-.18*	.01	-.14	-.05
3.Num.child	.27**	-.12	-.10	-.08	-.08	-.07	-.10	.03	-.22**	.02	.20**	-.16*	.11	.28**	-.14	-.02	-.13
4.Child Living (18)	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
5.Marital quality	-.05	-.04	.14	.33	.11	-.01	.13	-.01	.21	.04	-.24**	.10	-.32**	.04	.04	.31	.09
6. Time Since Diag.	-.02	.09	.10	.03	.08	.09	-.01	.02	-.05	.01	-.10	.00	.03	-.20**	.08	-.16*	-.01
7. Perceived Threat	.02	-.11	.01	.13	.07	-.10	-.06	-.08	-.01	-.04	.09	-.01	.04	.19*	-.14	.09	.00
8. Perceived Prog.	-.09	.02	.09	.09	-.01	.11	.17*	-.04	.32**	.03	-.16*	.17*	-.30**	-.06	-.02	.04	.08
9. Dietary	-.04	-.08	-.15	-.10	-.10	-.14	.08	.05	.08	.02	-.08	.14	.03	-.04	.07	.01	.09
10. Sport Activities	.10	-.13	-.08	.06	-.15	-.06	-.01	.02	-.03	.01	.06	-.07	.13	-.11	-.04	.02	.08
11. Notgaining weight	.03	.03	-.13	-.05	-.10	-.13	-.08	-.11	.01	-.08	-.11	-.08	.12	-.06	.05	-.05	.00
12. No Smoking	.03	-.04	-.03	.01	-.02	-.05	.12	.10	.08	.09	-.06	.07	-.01	-.08	.18*	-.03	.12
13. No Alcohol	-.05	.06	-.13	-.10	-.04	-.15	-.03	-.04	-.02	.00	-.01	.00	-.03	-.01	.17*	.04	.19**
14. Spouse Relation	.02	.02	-.05	-.06	.05	-.11	-.09	.03	-.03	-.20**	-.10	.06	.01	-.09	.05	-.04	.06
15. Children Relation	.27**	-.20**	.10	.08	.10	.06	.02	.13	-.06	-.01	.05	-.05	.06	-.07	.13	.07	.17**
16. Extended Family	.01	.01	.12	.02	.00	.21**	-.04	-.12	.12	-.12	.04	-.05	.18	-.01	.12	.05	.09
17. Economical Status	.11	-.08	-.05	-.09	-.07	.00	-.10	-.13	.02	-.13	.13	-.01	.15	.11	.07	.13	.01
18. PTG Spouse	.27**	-.38**	.27**	.18*	.22**	.19*	.18*	.31**	-.07	.19*	-.09	.00	.05	-.01	.16*	.05	.31**

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table15 (continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
19. Impr. Rel.	.04	.00	-.14	.04	.02	-.03	.04	.00	.04	-.14	.02	-.03	-.07	.05	-.04	.02	-.15	.92**	1
20.Pos.Life	.00	.10	-.07	.03	.02	.11	.00	.10	.03	-.07	.02	-.03	-.07	.08	-.08	.01	.01	..90**	.76**
21. App.Life	.11	.08	-.02	.02	.11	.08	.11	.08	.02	-.02	.11	.15	.10	.12	.16	.10	-.11	.79**	.63**
22. S.per Str.	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.79**	.66**
23. Sp. Dev.	-.07	-.07	.06	.06	.01	.02	-.07	-.07	.06	.06	.01	-.01	.01	.03	-.07	.06	.18*	.80**	.70**
24. PTG other	.14	.11	.11	.08	-.02	.04	.14	.11	.08	.11	-.02	-.06	-.07	.00	-.07	.04	.04	.75**	.68**
25. SImpro	-.05	.00	.06	.00	.00	.00	-.05	.00	.00	.06	.00	.12	.17*	-.03	.12	-.01	-.02	.92**	.90**
26. Sp.Pos.	.14	-.03	.05	.17	-.08	.01	.14	-.03	.17*	.05	-.08	-.19*	-.16*	-.09	-.21	-.06	.06	.90**	.76**
27. Sp.App.	.00	.02	.06	.04	.01	.07	.00	.02	.04	.06	.01	-.08	-.10	-.06	-.02	.08	.13	.79**	.66**
28. Sp.Stre	.03	.04	.05	.08	.02	.05	.03	.04	.08	.05	.02	.06	.08	-.08	.12	.05	-.06	.79**	.63**
29. Sp.Spiri.	-.05	-.05	-.06	-.05	-.16*	-.02	-.05	-.05	-.05	-.06	-.16*	-.02	-.08	.02	.05	-.05	-.10	.80**	.70**
30. Imp	.07	.12	.08	.10	.10	.12	.07	.12	.10	.08	.10	-.07	-.07	.00	-.09	.09	.06	.40**	.30**
31. Rumin.	.11	.00	-.02	.02	-.01	.06	.11	.00	.02	-.02	-.01	-.04	-.05	-.01	-.03	-.04	-.01	.30**	.22**
32. Avoid	.17*	.08	.13	.11	.12	.15*	.17*	.08	.11	.13	.12	-.01	-.01	-.02	.00	.16*	.20**	.40**	.36**
33. Hyper	.17*	.21**	.10	.28	.19**	.23	.17*	.21	.28**	.10	.19	.15	.11	.09	.16*	.21	.08	.30**	.20**
34. Coping	.07	.12	.09	.00	.07	.11	.07	.12	.00	.09	.07	.10	.13	.07	.05	.00	-.05	.36**	.31**
35. Problem	.14	.07	.02	.09	.07	.10	.14	.07	.09	.02	.07	.07	.05	.05	.09	.00	-.08	.27**	.26**
36. Emotion	.92**	.90**	.79**	.79**	.80**	.75**	.92**	.90**	.79**	.79**	.80**	.40**	.30**	.40**	.30**	.36**	.27**	.27**	.25**

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table15 (continued)

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
19. Impr. Relation	.76**	.63**	.66**	.70**	.68**	.90**	.76	.66**	.63**	.70**	.30**	.22**	.36**	.20**	.31**	.26**	.25**
20.Possibilities of Life	1	.63**	.64**	.71**	.67**	.76**	.90**	.64**	.63**	.71**	.38**	.28**	.37**	.31**	.35**	.17*	.28**
21. Appreciation Life		1	.57**	.52**	.57**	.63**	.63**	.57**	.95**	.52**	.37**	.29**	.31**	.33**	.28**	.30	.11
22. S. Persn Streng			1	.59**	.60**	.66**	.64**	.90**	.57**	.59**	.30**	.25**	.32**	.19*	.28**	.31	.18*
23. Spiritual Devel.				1	.63**	.70**	.71**	.59**	.52**	.96**	.35**	.27**	.35**	.28**	.32**	.11	.35**
24. PTG other					1	.68**	.67**	.60**	.57**	.63**	.32**	.23**	.31**	.27**	.27**	.20**	.23**
25. Sp.Impro. Relat.						1	.76**	.66**	.63**	.70**	.30**	.22**	.36**	.20**	.31**	.26**	.25**
26. Sp.Possibil of Life							1	.64**	.63**	.71**	.38**	.28**	.37**	.31**	.35**	.17**	.28**
27. Sp.Apprc. for Life								1	.57**	.59**	.30**	.25**	.32**	.19*	.28**	.31**	.18*
28. Sp.Sen. Pers Stre									1	.52**	.37**	.29**	.31**	.33**	.28**	.30**	.11
29. Sp.Spiri. Develop.										1	.35**	.27**	.35**	.28**	.32**	.11	.35**
30. Impact of event											1	.91**	.66**	.90**	.33**	.11	.35**
31. Rumination												1	.37**	.83**	.28**	.13	.24**
32. Avoidance													1	.38**	.29**	.13	.31**
33. Hypervigilance														1	.27**	.02	.35**
34. Coping															1	.67**	.69**
35. Problem f. coping																1	.06
36. Emotion f. coping																	1

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table15 (continued)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
19. Impr. Relation	-.35**	.26**	.13	.24**	.19*	.12	.23**	-.08	.14	-.02	-.04	.06	.00	.11	.05	.24**
20.Possibilities of Life	-.27**	.23**	.10	.20**	.19*	.18*	.31**	-.09	.23**	-.05	-.08	.09	.00	.20**	-.01	.27**
21. Appreciation Life	-.31**	.23**	.21	.17*	.16*	.24**	.27**	.11	.13	-.23**	.13	.01	-.12	.13	-.06	.23**
22. S. Persn Streng	-.40**	.22**	.26**	.14	.12	.26**	.37**	-.01	.23**	-.20**	.13	-.06	-.02	.04	.11	.33**
23. Spiritual Devel.	-.36**	.15	.10	.10	.12	-.05	.17*	-.24**	.03	.09	-.09	.11	.11	.18*	.21	.32**
24. . PTG other	-.34**	.13	.05	.08	.12	.05	.11	-.07	.10	-.04	-.13	.09	-.05	.16*	-.02	.33**
25. Sp.Impro. Relat.	-.35**	.26**	.13	.24**	.19*	.12	.23**	-.08	.14	-.02	-.04	.06	.00	.11	.05	.24**
26. Sp.Possibil of Life	-.27**	.23**	.10	.20**	.19*	.18	.31**	-.09	.23**	-.05	-.08	.09	.00	.20	-.01	.27**
27. Sp.Apprc. for Life	-.40**	.22**	.26**	.14	.12	.26**	.37**	-.01	.23**	-.20	.13	-.06	-.02	.04	.11	.33**
28. Sp.Sen. Pers Stre	-.31**	.23**	.21**	.17*	.16*	.24**	.27**	.11	.13	-.23**	.13	.01	-.12	.13	-.06	.23**
29. Sp.Spiri. Develop.	-.36**	.15	.10	.10	.12	-.05	.17*	-.24**	.03	.09	-.09	.11	.11	.18*	.21	.32**
30. Impact of event	-.32**	.06	.06	.09	.00	.05	.19**	-.19*	.17*	.09	-.17*	.39**	.02	.07	.11	.15
31. Rumination	-.24**	.10	.10	.13	.01	.06	.15	-.16*	.19*	.10	-.10	.36**	.02	.02	.08	.11
32. Avoidance	-.27**	.02	.01	.06	-.02	.14	.26**	-.08	.18*	-.05	-.14	.17*	.02	.14	.07	.15
33. Hypervigilance	-.29**	.02	.03	.03	.00	-.07	.08	-.23**	.05	.15	-.19*	.44**	.02	.03	.12	.11
34. Coping	-.37**	.12	.07	.06	.11	.22	.38**	-.10	.27	-.05	.11	.10	.12	.06	.15	.29**
35. Problem f. coping	-.35**	.12	.18*	.13	-.01	.45**	.40**	.28**	.28**	-.42**	.49**	-.13	-.09	.01	.03	.26**
36. Emotion f. coping	-.52**	.01	.01	-.08	.09	-.11	.19*	-.41**	.08	.33**	-.22**	.24**	.29**	.01	.24*	.14

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

Table15 (continued)

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
37.Indirect cop	1	-.07	-.33**	-.01	.05	-.17*	-.36**	.13	-.19*	.00	-.12	-.08	-.12	.02	-.13	-.15
38. Perce. Soc.support		1	.50**	.84**	.83**	.22**	.15	.09	.24**	-.07	.09	-.13	.10	-.08	.15	.13
39. Family Support			1	.31**	.10	.26**	.22	.13	.21**	-.19*	.18*	-.25**	.10	-.08	.12	.02
40. Friend Support				1	.51**	.24**	.17*	.09	.25**	-.05	.06	-.15	.04	-.07	.07	.10
41. Significant support					1	.05	.00	.00	.11	.03	.00	.03	.10	-.05	.14	.14
42. Hardiness						1	.73**	.64**	.75**	-.53**	.36**	-.20**	-.14	.01	-.02	.06
43. Commitment							1	.09	.55**	-.30**	.21	-.07	-.02	.09	.00	.10
44. Control								1	.11	-.48**	.38**	-.27**	-.18**	.04	.02	.02
45. Challenge									1	-.32**	.13	-.06	-.07	-.11	-.07	.03
46. Locus of control										1	-.32**	.29**	.30**	-.11	.09	-.02
47. Self esteem											1	-.33**	-.23**	.05	.02	.02
48. Depression												1	-.16*	-.01	-.10	.01
49. Religi. Part before													1	-.14	.40**	-.06
50. Religi. Part. after														1	.01	.33**
51. Religi. Belief before															1	.15
53. Religious belief after																1

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed).

1.Age; 2.Gender; 3.Num.child; 4.Child Living (18); 5.Marital quality; 6. Time Since Diagnosis; 7. Perceived Threat; 8. Perceived Prognosis; 9. Dietary; 10. Sport Activities; 11. Not gaining weight; 12. No Smoking; 13. No Alcohol; 14. Spouse Relation; 15. Children Relation; 16. Extended Family; 17. Economical Status; 18. PTG Self; 19. Improved Relationship; 20. New Possibilities for One's Life; 21. Appreciation for Life; 22. Sense of Personal Strength; 23. Spiritual Development; 24. Spouses' PTG Perceived by Patient; 25. Spouses' observation of the Patient PTG in Improved Relationship; 26. Spouses' observation of the Patient PTG in New Possibilities for One's Life; 27. Spouses' observation of the Patient PTG in Appreciation for Life; 28. Spouses' observation of the Patient PTG in Sense of Personal Strength; 29. Spouses' observation of the Patient PTG in Spiritual Development; 30. Impact of event; 31. Rumination; 32. Avoidance; 33. Hypervigilance; 34. Coping; 35. Problem focused coping; 36. Emotion focused coping; 37.Indirect coping; 38. Perceived social support; 39. Family Support; 40. Friend Support; 41. Significant other support; 42. Hardiness; 43. Commitment; 44. Control; 45. Challenge; 46. Locus of control; 47. Self esteem; 48. Depression; 49. Religious participation before; 50. Religious participation after; 51. Religious belief before; 53. Religious belief after

APPENDIX B: DEMOGRAPHIC INFORMATION FORM

Bu araştırma, kalp krizinin, kalp krizi geçiren bireyler ve eşleri üzerindeki etkilerini araştırmak için yapılmaktadır. Kalp krizini geçiren kişilerin ve eşlerinin nasıl etkilendiğini anlayabilmek ve ne tür psikolojik destekten yararlanabildiklerini saptayabilmek için sizden alacağımız bilgiler bizim için çok önemlidir. Vereceğiniz bilgilerin ileride benzer durumda olan kişiler için daha yararlı olacağını düşünüyoruz.

Bu araştırmaya katılmak tamamen gönüllük esasına bağlıdır. Buradaki anketlere vereceğiniz cevaplar ve kişisel (demografik) bilgiler sadece araştırma amacıyla kullanılacak ve kesinlikle gizli tutulacaktır. Lütfen soruların başındaki yönergeleri dikkatlice okuyunuz ve size en uygun gelen seçeneği X ile işaretleyiniz. Lütfen cevaplanmamış soru bırakmayınız. Sizin kabul etmeniz durumunda, bu formu doldurduktan 3 ve 6 ay sonra tekrar değerlendirme yapılacaktır. Araştırma bitimde araştırmaya katılanlarla bilgilendirme toplantısı yapılacaktır. Çalışmaya yönelik sorularınızı Abant İzzet Baysal üniversitesi Öğretim üyesi ve ODTÜ Klinik Psikoloji doktora öğrencisi Öğr.Gör. Emre ŞENOL-DURAK'a (Tel: 374 253 45 11-1299; emresenoldurak@yahoo.com) iletebilirsiniz.

Bu çalışmaya olan katkınız ve verdiğiniz cevaplardaki samimiyetiniz için teşekkür ederiz.

Öğr.Gör. Emre ŞENOL-DURAK

Abant İzzet Baysal Üniversitesi

Orta Doğu Teknik Üniversitesi

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip bırakabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı olarak kullanılmasını kabul ediyorum.

Adınız Soyadınız: _____ Eşinizin Adı:

Tarih: _____

İmza: _____

KİŞİSEL BİLGİLER

1. Yaşınız: _____

2. Cinsiyetiniz: ❑ Bayan ❑ Erkek

3. Medeni Haliniz:

a) Bekar

b) Evli

c) Ayrı

d) Boşanmış

4. Çocuğunuz var mı?

a) Evet

1. Kaç çocuğunuz var? _____

2. Çocuklarınız kaç yaşındadır? I.çocuk _____II. çocuk_____III.çocuk_____

b) Hayır

5. Evde beraber yaşadığınız kişiler:

a. Eş

b. Kız çocuk

c. Erkek çocuk

d. Kardeş

e. Anne / Kayınvalide

f. Baba / Kayınbaba

g. Hizmetçi / Bakıcı

h. Diğer _____

6. Mesleğiniz:_____

7. Halen çalışıyor musunuz?

a) Evet

1. Ne kadar süredir çalışıyorsunuz? _____yıl_____ay

b) Hayır

1. Daha önce çalışıyorduysanız ne kadar süredir çalışmıyorsunuz? _____yıl_____ay

c) Hiç çalışmadım

8. Eğitim durumunuz

a) Okur yazar değil

b) Okur yazar

c) İlkokul mezunu

d) Ortaokul mezunu

e) Lise mezunu

f) Yüksek okul

g) Üniversite mezunu

h) Yüksek Lisans ve Doktora Mezunu

9. En uzun süre yaşadığınız yer

a) Köy

b) Kasaba

c) Şehir (Gecekondu)

d) Şehir (Merkez)

e) Büyük şehir gecekondu (Ankara, İstanbul, İzmir, Bursa, Adana)

f) Büyük şehir merkez (Ankara, İstanbul, İzmir, Bursa, Adana)

10. Ailenizin toplam gelir düzeyi:_____YTL (Toplam miktar belirtiniz)

11. Herhangi bir sosyal güvenceniz var mı?

a) Var

1. Memur/memur emeklisi
2. İşçi /işçi emeklisi
3. Bağkur/Bağkur emeklisi
4. Özel sigorta
5. Yeşil kart
6. Diğer _____

b) Yok

HASTALIKLA İLGİLİ BİLGİLER

12. Ne kadar süre önce kalp krizi geçirdiniz? _____ Ay

13. Kalp kriziniz tekrarladı mı?

a) Evet

1. Kaç kez tekrarladı? _____

2. En sonuncu kalp kriziniz ne kadar süre önce tekrarladı? _____ yıl _____ ay

b) Hayır

14. Hastalığınızla ilgili nasıl bir tedavi izlendi?

a) İlaç tedavisi _____ yıl _____ ay

b) Ameliyat

1. Anjiyo yapıldı _____ yıl _____ ay

2. Stent takıldı _____ yıl _____ ay

3. By pass oldum _____ yıl _____ ay

c) Diğer (Belirtiniz) _____

15. Kalp kriziniz nedeniyle hiç hastaneye yattınız mı?

a) Evet

1. Kaç kez hastaneye yattınız? _____

2. Ne zaman yattınız? _____ yıl _____ ay

_____ yıl _____ ay

b) Hayır

16. Hastalığız/ Eşinizin hastalığı ile ilgili olarak şu anki durumunuzu nasıl değerlendiriyorsunuz?

a) Çok kötü

b) Kötü

c) Zaman zaman iyi zaman zaman kötü

d) İyi

e) Çok iyi

17. Rahatsızlığınızın/ Eşinizin rahatsızlığının hayati tehlikesini nasıl değerlendiriyorsunuz?

a) Hiçbir hayati tehlikesinin olmadığını düşünüyorum

b) Hayati tehlikesinin çok az derecede olduğunu düşünüyorum

c) Hayati tehlikesinin orta derecede olduğunu düşünüyorum

d) Hayati tehlikesinin oldukça fazla derecede olduğunu düşünüyorum

e) Hayati tehlikesinin aşırı derecede olduğunu düşünüyorum

18. Kalple ilgili problemler dışında halen başka bir hastalığınız var mı?

a) Evet

1. Hastalığınız nedir? _____
2. Ne zamandan beri bu hastalığınız devam ediyor? _____yıl _____ay
3. Bu hastalığınızdan dolayı hastanede yattınız mı? ❑ Evet___ay yattım ❑ Hayır
4. Hastalığınız için bir ilaç kullanıyor musunuz?

❑ Evet_____ilacını kullanıyorum

❑ Hayır

b) Hayır

19. Psikolojik bir rahatsızlık geçirdiniz mi?

a) Evet

1. Rahatsızlığınız nedir? _____
2. Ne zamandan beri bu rahatsızlığınız devam ediyor? __yıl _____ay
3. Şu an psikolojik rahatsızlığınız için bir ilaç kullanıyor musunuz?

❑ Evet_____ilacını kullanıyorum

❑ Hayır

b) Hayır

AÇIK UÇLU SORULAR

20. Kalp krizi geçirmek/ Eşinizin Kalp krizi geçirmesi hayatınızı nasıl etkiledi?

_____

21. Kalp krizi geçirdikten sonra/ / Eşinizin Kalp krizi geçirdikten sonra hayatınızda neler gelişti diye düşünüyorsunuz? Diğer bir deyişle hastalığınızdan / eşinizin hastalığından dolayı hayatınızdaki olumlu değişiklikler neler?

_____

_____

_____

22. Kalp krizi geçirdikten sonra/ eşiniz kalp krizi geçirdikten sonra hayatınızda ne tür sıkıntılar oldu diye düşünüyorsunuz? Diğer bir deyişle hastalığınızdan/ eşinizin hastalığından dolayı hayatınızdaki olumsuz değişiklikler neler?

_____

_____

_____

DINE KATILIM VE DİNE İNANÇ

23. Hastalığınızdan/ eşinizin hastalığından önce, dinin gerekliliklerini (namaz, oruç, zekât vb. dini vecibelerinizi) ne ölçüde yerine getiriyordunuz?

a) Hiç yerine getirmezdim
b) Az yerine getirirdim
c) Yerine getirirdim
d) Çok yerine getirirdim
e) Tamamen yerine getirirdim

24. Hastalığınızdan / eşinizin hastalığından sonra, dinin gerekliliklerini (namaz, oruç, zekât vb. dini vecibelerinizi) yerine getirmenizde değişiklik oldu mu?

a) Hiç olmadı
b) Az oldu
c) Ne oldu ne olmadı (nötr)
d) Çok oldu
e) Tamamen oldu

25. Hastalığınızdan / eşinizin hastalığından önce, Allah'a olan inancınız nasıldı?

a) Çok zayıftı

b) Biraz zayıftı

c) Ne zayıftı ne de kuvvetliydi (Nötr)

d) Biraz kuvvetliydi

e) Çok kuvvetliydi

26. Hastalığınız / eşinizin hastalığı Allah'a olan inancınızı nasıl etkiledi?

a) Çok zayıfladı

b) Biraz zayıfladı

c) Etkilemedi

d) Biraz kuvvetlendi

e) Çok kuvvetlendi

ES ILIŞKISI

27. Aşağıdaki 3 soruda eşinizle ilişkinizi değerlendirmeniz istenmektedir. Lütfen bu soruları okuyarak size uygun olan seçeneği işaretleyin.

	Hiç iyi değil	Biraz iyi	Arada sırada iyi	Çoğunlukla iyi	Her zaman iyi
1. Rahatsızlığınızdan/ eşinizin rahatsızlığından önce, eşinizle ilişkinizi nasıl değerlendirirdiniz?					
2. Eşinizle şu anki ilişkinizi nasıl değerlendirirsiniz?					
3. Eşinizle ilişkilerinizin ileride nasıl olacağını düşünüyorsunuz?					

KALP KRİZİ GEÇİRMEDEN ÖNCEKİ YAŞAM;

	Hiçbir zaman	Bazen	Arada Sırada	Çoğunlukla	Her zaman
1. Çocuklarınızın bakımını üstleniyor muydunuz?					
2. Çocuklarınızla sorunlar yaşıyor muydunuz?					
3. Çocuklarınızla sıkıntılarınızı paylaşıyor muydunuz?					
4. Çocuklarınız sizinle sıkıntılarını paylaşıyor muydu?					
5. Geniş ailenizle (anne, baba, kayınvalide, kayınpeder, kardeş vb) sorunlar yaşıyor muydunuz?					
6. Aile büyüklerinden birinin bakımını üstleniyor muydunuz?					
7. Eşinizin bakımında ona yardımcı oluyor muydunuz?					
8. Doktor kontrollerinde eşinizin yanında bulunur muydunuz?					
9. Sizin doktor kontrollerinizde eşiniz yanınızda bulunur muydu?					
10. Sizin doktor kontrollerinizde çocuklarınız yanınızda bulunur muydu?					
11. Eşiniz sizinle sıkıntılarını paylaşır mıydı?					
12. Siz eşinizle sıkıntılarınızı paylaşır mıydınız?					
13. Ailenizde ekonomik sorunlar yaşıyor muydunuz?					
14. İşinizle ilgili sorunlar yaşıyor muydunuz?					
15. Ev işlerine yardım ediyor muydunuz?					
16. Diyetinize ne kadar dikkat ederdiniz?					
17. Spor yapmaya (yürüyüş vb) ne kadar dikkat ederdiniz?					
18. Kilonuza ne kadar dikkat ederdiniz?					
19. Sigara kullanmamaya ne kadar dikkat ederdiniz?					
20. Alkol kullanmamaya ne kadar dikkat ederdiniz?					

KALP KRİZİ GEÇİRDİKTEN SONRAKİ YAŞAM

	Hiçbir zaman	Bazen	Arada Sırada	Çoğunlukla	Her zaman
1. Çocuklarınızın bakımını üstleniyor musunuz?					
2. Çocuklarınızla sorunlar yaşıyor musunuz?					
3. Çocuklarınızla sıkıntılarınızı paylaşıyor musunuz?					
4. Çocuklarınız sizinle sıkıntılarını paylaşıyor mu?					
5. Geniş ailenizle (anne, baba, kayınvalide, kayınpeder, kardeş vb) sorunlar yaşıyor musunuz?					
6. Aile büyüklerinden birinin bakımını üstleniyor musunuz?					
7. Eşinizin bakımında ona yardımcı oluyor musunuz?					
8. Doktor kontrollerinde eşinizin yanında bulunur musunuz?					
9. Sizin doktor kontrollerinizde eşiniz yanınızda bulunur mu?					
10. Sizin doktor kontrollerinizde çocuklarınız yanınızda bulunur mu?					
11. Eşiniz sizinle sıkıntılarını paylaşıyor mu?					
12. Siz sıkıntılarınızı eşinizle paylaşıyor musunuz?					
13. Ailenizde ekonomik sorunlar yaşıyor musunuz?					
14. İşinizle ilgili sorunlar yaşıyor musunuz?					
15. Ev işlerine yardım ediyor musunuz?					
16. Diyetinize ne kadar dikkat ediyorsunuz?					
17. Spor yapmaya (yürüyüş vb) ne kadar dikkat ediyorsunuz?					
18. Kilonuza ne kadar dikkat ediyorsunuz?					
19. Sigara kullanmamaya ne kadar dikkat ediyorsunuz?					
20. Alkol kullanmamaya ne kadar dikkat ediyorsunuz?					

APPENDIX C: POSTTRAUMATIC GROWTH INVENTORY

THE MI PATIENT SELF PTG/ THE SPOUSE SELF PTG

Aşağıda hastalığınızdan dolayı/ eşinizin hastalığından yaşamınızda olabilecek bazı değişiklikler verilmektedir. Her cümleyi dikkatle okuyunuz ve belirtilen değişikliğin sizin için ne derece gerçekleştiğini aşağıdaki ölçeği kullanarak belirtiniz.

Examples of the Items:

	Hiç yaşamadım	Çok az derecede yaşadım	Az derecede yaşadım	Orta derecede yaşadım	Oldukça fazla derecede yaşadım	Aşırı derecede yaşadım
1. Hayatıma verdiğim değer arttı						
2. Hayatımın kıymetini anladım						
3. Yeni ilgi alanları geliştirdim.						

THE MI PATIENT OBSERVED THE SPOUSES' PTG/ THE SPOUSE OBSERVED THE PATIENTS' PTG

Aşağıda sizin hastalığından dolayı eşinizin yaşamında/ eşinizin hastalığından dolayı eşinizde olabilecek bazı değişiklikler verilmektedir. Her cümleyi dikkatle okuyunuz ve belirtilen değişikliği eşinizde ne derece gözlemlediğinizi aşağıdaki ölçeği kullanarak belirtiniz.

Examples of the Items:

	Hiç gözlemlemedim	Çok az derecede gözlemledim	Az derecede gözlemledim	Orta derecede gözlemledim	Oldukça fazla derecede gözlemledim	Aşırı derecede gözlemledim
1. Eşimin hayatına verdiği değer arttı.						
2. Eşim hayatının kıymetini anladı.						
3. Eşim yeni ilgi alanları geliştirdi.						

APPENDIX D: IMPACT OF EVENT SCALE-REVISED

Aşağıda, stresli bir yaşam olayından sonra insanların yaşayabileceği bazı zorlukların bir listesi sunulmuştur. Her cümleyi dikkatlice okuyunuz. GEÇTİĞİMİZ YEDİ GÜN İÇERİSİNDE, yaşadığınız/ eşinizin yaşadığı HASTALIĞI düşünerek, bu zorlukların sizi ne kadar rahatsız ettiğini cümlelerin sağındaki beş kutucuktan yalnızca birini işaretleyerek belirtiniz.

Examples of the Items:

	Hiç	Biraz	Orta Düzeyde	Fazla	Çok fazla
1. Hastalığı hatırlatan her türlü şey, hastalıkla ilgili duygularımı yeniden ortaya çıkardı.					
2. Uykuyu sürdürmekte güçlük çektim.					
3. Başka şeyler benim hastalık hakkında düşünmeyi sürdürmeme neden oldu.					

APPENDIX E: LOCUS OF CONTROL SCALE

Bu anket, insanların yaşama ilişkin bazı düşüncelerini belirlemeyi amaçlamaktadır. Sizden, bu maddelerde yansıtılan düşüncelere ne ölçüde katıldığınızı ifade etmeniz istenmektedir.

Bunun için, her bir maddeyi dikkatle okuyunuz ve o maddede ifade edilen düşüncenin sizin düşüncelerinize uygunluk derecesini belirtiniz. Bunun için de, her bir ifadenin karşısındaki seçeneklerden sizin görüşünüzü yansıtan kutucuğa bir (X) işareti koymanız yeterlidir. "Doğru" ya da "yanlış" cevap diye bir şey söz konusu değildir.

Examples of the Items:

		Hiç uygun değil	Pek uygun değil	Uygun	Oldukça uygun	Tamamen uygun
1	İnsanın yaşamındaki mutsuzluklarının çoğu, biraz da şanssızlığa bağlıdır.					
2	İnsan ne yaparsa yapsın üşütüp hasta olmanın önüne geçemez.					
3	Bir şeyin olacağı varsa eninde sonunda mutlaka olur.					

APPENDIX F: ROSENBERG SELF ESTEEM SCALE

Aşağıda genel yaşam yaklaşımı ve tutumlarıyla ilgili ifadeler verilmiştir. Her bir ifadede belirtilen görüşe ne denli katıldığınızı sunulan 5 basamaklı ölçek üzerinde değerlendiriniz. Her cümlede söylenenin sizin için ne kadar doğru olduğunu veya olmadığını belirtmek için o cümle altındaki kutucuklardan yalnız bir tanesini işaretleyin.

Examples of the Items:

		Hiç katılmıyorum	Katılmıyorum	Biraz katılıyorum	Katılıyorum	Tamamen katılıyorum
1.	Kendimi en az diğer insanlar kadar değerli buluyorum					
2.	Bazı olumlu özelliklerim olduğunu düşünüyorum					
3.	Genelde kendimi başarısız bir kişi olarak görme eğilimindeyim					

APPENDIX G: WAYS OF COPING INVENTORY

Aşağıda, rahatsızlık gibi önemli olabilecek olaylar karşısında kişilerin davranış, düşünce ve tutumlarını belirten bazı cümleler verilmiştir. Lütfen her cümleyi dikkatle okuyunuz. Yaşamınızda karşılaştığınız rahatsızlıkla başa çıkmak için, bu cümlelerde anlatılanları ne sıklıkla kullandığınızı size uygun gelen rakamı daire içine alarak işaretleyiniz. Hiçbir cümleyi cevapsız bırakmamaya çalışınız. Her cümle ile ilgili yalnız bir cevap kategorisini işaretleyiniz.

Examples of the Items:

	Hiç uygun değil	Pek uygun değil	Uygun	Oldukça uygun	Çok uygun
1. Aklımı kurcalayan şeylerden kurtulmak için değişik işlerle uğraşırım					
2. Bir sıkıntım olduğunu kimsenin bilmesini istemem					
3. Bir mucize olmasını beklerim					

APPENDIX H: MULTIDIMENSIONAL PERCEVIED SOCIAL SUPPORT SCALE

Aşağıda 12 cümle ve her bir cümle altında da cevaplarınızı işaretlemeniz için 1'den 7'ye kadar rakamlar verilmiştir. Her cümlede söylenenin sizin için ne kadar doğru olduğunu veya olmadığını belirtmek için o cümle altındaki rakamlardan yalnız bir tanesini daire içine alarak işaretleyiniz. Bu şekilde 12 cümlenin her birine bir işaret koyarak cevaplarınızı veriniz. Lütfen hiçbir cümleyi cevapsız bırakmayınız. Sizce doğruya en yakın olan rakamı işaretleyiniz.

Examples of the Items:

1.	Ailem (örneğin, annem, babam, eşim, çocuklarım, kardeşlerim) bana gerçekten yardımcı olmaya çalışır Kesinlikle Hayır 1 2 3 4 5 6 7 Kesinlikle Evet
2.	İhtiyacım olan duygusal yardımı ve desteği ailemden (örneğin, annemden, babamdan, eşimden, çocuklarımdan, kardeşlerimden) alırım Kesinlikle Hayır 1 2 3 4 5 6 7 Kesinlikle Evet
3.	Arkadaşlarım bana gerçekten yardımcı olmaya çalışırlar Kesinlikle Hayır 1 2 3 4 5 6 7 Kesinlikle Evet

APPENDIX I: BECK DEPRESSION INVENTORY

Aşağıda, kişilerin ruh durumlarını ifade ederken kullandıkları bazı cümleler verilmiştir. Her madde, bir çeşit ruh durumunu anlatmaktadır. Her maddede o ruh durumunun derecesini belirleyen 4 seçenek vardır. Lütfen bu seçenekleri dikkatle okuyunuz. Son bir hafta içindeki (şu an dahil) kendi durumunuzu göz önünde bulundurarak, size en uygun ifadeyi bulunuz. Daha sonra o maddenin yanındaki harfin üzerine (X) işareti koyunuz.

Examples of the Items:

1.	(a) Kendimi üzgün hissetmiyorum. (b) Kendimi üzgün hissediyorum. (c) Her zaman için üzgünüm ve kendimi bu duygudan kurtaramıyorum. (d) Öylesine üzgün ve mutsuzum ki dayanamıyorum.
2.	(a) Gelecekten umutsuz değilim. (b) Geleceğe biraz umutsuz bakıyorum. (c) Gelecekten beklediğim hiçbir şey yok. (d) Benim için bir gelecek yok ve bu durum düzelmeyecek.
3.	(a) Kendimi başarısız görmüyorum. (b) Çevremdeki bir çok kişiden daha fazla başarısızlıklarım oldu sayılır. (c) Geriye dönüp baktığımda, çok fazla başarısızlığımın olduğunu görüyorum. (d) Kendimi tümüyle başarısız bir insan olarak görüyorum.

APPENDIX J: PSYCHOLOGICAL HARDINESS SCALE

Aşağıda sizin kişisel özellikleriniz ile ilgili bazı ifadeler yer almaktadır.Lütfen şu an ki görüşlerinizi ve yaşam durumunuzu en iyi tanımlayan kutuyu X ile işaretleyerek her ifadeyi yanıtlayınız.

Examples of the Items:

	Hiç doğru değil	Biraz doğru	Genellikle doğru	Tamamen doğru
1. Çok çalışarak her zaman amacınıza ulaşabilirsiniz				
2. İşler yoluna girmeyeceği için çalışıp çabalamanın faydası yoktur				
3. Ne istediğini bilen biriyimdir				

APPENDIX K: TURKISH SUMMARY

Doğal afetler, kazalar, savaşlar, akut ve kronik hastalıkların psikolojik sağlık üzerindeki etkisi çeşitli araştırmalarda ortaya konulmuştur. Psikolojik sağlık üzerindeki olumsuz sonuçları irdeleyen araştırmalar Travma Sonrası Stres Bozukluğu (TSSB) üzerinde durmuştur. Son yıllarda ise TSSB'nin bir "antitezi" olarak bilinen (Tedeschi, Park, & Calhoun, 1998, p.3) ve acı veren stres verici olaylar sonrasında olumlu değişimlerin olmasıyla (Calhoun, Cann, Tedeschi, & McMillan 2000; Linley, & Joseph, 2004; Tedeschi & Kilmer, 2005; Tedeschi & Calhoun, 2004) insanlara verilmiş evrensel bir "hediye" olarak kabul edilen (Calhoun & Tedeschi, 1998b, p 236) Travma Sonrası Gelişim (TSG) konusunda araştırmalar dikkati çekmektedir. Moran ve Shakespeare-Finch' e göre (2003) travmatik yaşantının hemen sonrasında ilk olarak olumlu değişimler ortaya çıkar.

1. Literatür Özeti

Kronik veya akut hastalıkların travma sonrası gelişim üzerindeki etkisini inceleyen çalışmalarda ani körlük geçiren hastalarla, AIDS hastalarıyla (Boerum, 1998), kanserli hastalarla (Baider, & De-Nour, 2000; Sharon, 2004; Weiss, 2004b), romatizmal rahatsızlıkları olan hastalarla çalışılmış (Tedeschi & Calhoun, 2004), miyokard enfaktür (MI = kalp krizi) hastalarıyla yapılan çalışmaların ise sınırlı olduğu görülmüştür. Bu doğrultuda MI hastalarıyla yapılan çalışmanın dünya literatürüne ve ülkemiz literatürüne katkısı olacağı düşünülmüştür.

Travmatik yaşantılardan birisi olan akut ve kronik rahatsızlıklar (Calhoun & Tedeschi, 1998b) içinde dünyada (Stewart, Kennard, Waller, & Fixler, 1994) ve

ülkemizde (Tokgözoğlu, 2004) yaygın şekilde görülen miyokard enfaktüs (MI; kalp krizi), bireyleri olduğu kadar onların ailelerini de etkilemektedir (Hobfoll & Spielberger, 1992). Bu süreci yaşayan bireylerin ve ailelerinin süreçten olumlu etkilenmeleri, yaşamı yeniden değerlendirmeleri (Tedeschi & Calhoun, 2004), kendilerinde, ilişkilerinde ve yaşama bakış açılarında olumlu değişiklikler yaratmaları (Calhoun & Tedeschi 1998b) olarak tanımlanan TSG, literatürde çeşitli değişkenlerle açıklanmıştır. TSG üzerinde etkisi incelenen ve bu araştırmaya Schaefer ve Moos'un (1998) modelini (Figüre 1) de test etmek üzere dahil edilen değişkenler dört ana boyutta kategorize edilebilir; travmatik yaşantının özellikleri (olayı algılaması vb.), bireyin çevresinden aldığı kaynaklar, kişisel özellikleri ve bilişsel işlemleme-baş etme. Bu modelde, bireysel ve kişisel kaynaklar kişilerin yaşam krizleri sırasındaki değişkenleri etkiler. Yaşamda ortaya çıkan krizler sırasındaki değişimler ise kişilerin olayı bilişsel olarak işlemlemesini ve baş etme stratejilerini şekillendirerek TSG'ye yol açar.

Çevresel kaynakları bireyin çevresinden aldığı sosyal desteğin uygunluğu, zamanlaması, ulaşılabilirliği (Almedom, 2004), travma öncesinde ve sonrasında bireyin içinde bulunduğu ortamı (Schafer & Moos, 1998) ile eş tarafından verilen sosyal desteği içermektedir (Weiss, 2004a). Bir araştırmada bireylerin çevreden aldığı desteğin harekete geçmesinde olayın özelliklerinin de önemli olduğu vurgulanmaktadır (Almedom, 2004).

Travma sonrası gelişimle ilgili bireysel kaynaklar ise sosyo-demografik değişkenler (yaş, cinsiyet, eğitim durumu vb), kontrol odağı (Cohen et al., 1998b; Calhoun & Tedeschi, 1998b), psikolojik dayanıklılık (Tedeschi et al., 1998) ve öz güven (Aldwin et al., 1996) gibi bireyin kişilik özellikleridir (Calhoun et al., 2000). Travmatik

yaşantı ve bu yaşantıyı algılayış ile ilgili özellikleri olayın süresi, gidişatı ile bireyin olayla ilgili algıladığı tehdidi kapsamaktadır (Schafer & Moos, 1998). Travmatik yaşantıyı bilişsel işlemleme ise olayın birey üzerindeki etkisi, baş etme stratejileri (Schafer & Moos, 1998), olayla ilgili ruminatif düşünceler ve dini inanç gibi değişkenleri kapsamaktadır (Calhoun et al., 2000). Bazı araştırmalar baş etme stratejilerini bilişsel işlemlemeden ayrı bir değişken olarak ele almaktadır. Bu değişkenlerin bir arada değerlendirilmesi yoluyla bireysel kaynakların, çevresel kaynakların, olayı algılayışın ve bilişsel işlemlemenin travma sonrası gelişim üzerindeki rolünü kapsamlı şekilde ele almak mümkün olacaktır. Önceki çalışmalarda bu kapsamda kişilik özelliklerinin ve bilişsel süreçlerin değerlendirilmediği görülmüştür.

Araştırmanın amacı, MI geçirmiş bireylerde ve onların eşlerinde travma sonrası gelişimin belirleyicilerini incelemektir. Literatürdeki araştırmalarda travmatik yaşantının özellikleri (Cohen et al., 1998a; Schafer & Moos, 1998), çevresel kaynaklar, kişisel özellikler (Shaw at al., 2005; Calhoun & Tedeschi, 2004) ve bilişsel işlemleme (Tedeschi & Kilmer, 2005) sıklıkla vurgulanan değişkenlerdir. Bu araştırmayla, belirtilen değişkenlerin travma sonrası gelişim üzerindeki toplam etkisi Schafer ve Moos'un (1998) oluşturduğu "Yaşam Krizleri ve Kişisel Gelişim Modeli" çerçevesinde incelenecektir. Örneklem grubunun evli çiftlerden oluşturulması hem hastalarda hem de eşlerinde travma sonrası gelişimi belirleyen faktörlerin incelenmesine olanak sağlayacaktır. Model kalp krizi hastaları ve eşlerinde ayrı ayrı test edilecektir.

Ayrıca travmanın aileyi bir bütün olarak etkilediği öne sürülmektedir (Baider, & De-Nour, 2000; Cohen et al., 1998b; Calhoun & Tedeschi, 1998a; Calhoun et al., 2000; Schafer & Moos, 1998; Weiss, 2004a). Bu doğrultuda, hem kalp krizi geçirmiş hasta

hem de eşi araştırmaya dahil edilecek, travmanın yarattığı rahatsızlık yoğunluğunun fazla olduğu bireyin daha fazla TSG'ye sahip olup olmadığı incelenecektir.

Bunun yanı sıra, TSG'nin ölçek bilgileriyle değerlendirilmesinin yanlı sonuçlar doğurabileceği bilinmektedir (Park, & Helgeson, 2006; Maercker, & Zoellner, 2004). Bu nedenle dolaylı değerlendirme araçları ile (eşin gözlediği travma sonrası gelişimin puanları, davranışsal değişim, ve açık uçlu sorular) hem MI'lı hastaların hem de eşlerin TSG puanlarının doğruluğu değerlendirilecektir. Evli çiftlerden hem kendilerine hem de eşinin gelişimine ilişkin değerlendirme yapması istenecek, böylece birey tarafından hissedilen ve eşi tarafından algılanan gelişimin tutarlılığı araştırılacaktır. Araştırmada eş tarafından algılanan travma sonrası gelişimin değerlendirilmesi de literatüre yeni bir boyutu gündeme getirmesi bakımından önemlidir.

2. Yöntem

2.1. Katılımcılar

MI'lı hastalar (N=151) ve eşlerinden (N=137) oluşan toplam 288 kişi araştırmaya katılmıştır. Hasta örneklemi 132 (% 87.4) erkek, ve 19 (% 12.6) bayandan oluşurken, eş örneklemi 121 bayan (% 88.3) ve 16 (% 11.7) erkekten oluşmaktadır.

Hastaların çoğunluğunun ameliyat geçirdiği (N=119, % 79) görülmüştür. Anjio (N=39, % 26), hem anjiyo hem stent (N=33, % 22), bypass (N=22, % 15), anjiyo, stent ve bypass (N=17, % 11) bu ameliyatların türlerini oluşturmaktadır. Hastaların % 43.7'si ilaç almazken (N=66), % 56.3' ü (N=85) ilaç kullanmaktadır. Katılımcıların çoğunluğunun (N=145, % 96) sosyal güvencesi vardır.

2.2. Ölçekler

Araştırmada hem MI'lı hastalara hem de eşlerine verilmek üzere bir test bataryası hazırlanmıştır. Bu bataryada Travma Sonrası Gelişim Ölçeği (Tedeschi & Calhoun, 1996), Olay Etkisi Ölçeği (Horowitz, Wilner, & Alvarez, 1979), Beck Depresyon Ölçeği (Beck, Ward, Mendelson, Mock & Erbaugh, 1961; Beck, Rush, Shaw, & Emery, 1979), Dine Katılım ve Dini İnanç Ölçeği (Wuthnow, 1994; cited in Calhoun et al. 2000), Baş Etme Stratejileri Ölçeği (Folkman & Lazarus1980), Çok Boyutlu Algılanan Sosyal Destek Ölçeği (Zimet, et al.1988; cited in Eker & Arkar, 1995), Psikolojik Dayanıklılık Ölçeği (Durak, & Motan, 2006), Kontrol Odağı Ölçeği (Dağ, 2004), Rosenberg Benlik Saygısı Ölçeği (Rosenberg, 1965) ve Demografik Bilgi Formu bulunmaktadır.

2.2.1. Travma Sonrası Gelişim Ölçeği

Tedeschi & Calhoun (1996) tarafından travma sonrası bireylerdeki olumlu değişiklikleri değerlendirmek üzere geliştirilmiş Travma Sonrası Gelişim Ölçeği, 21 maddeden ve kişilerarası ilişkilerin gelişmesi, yaşamda yeni olanaklar, yaşama minnet duyma (yaşamın değerini anlama), kendini daha güçlü hissetme, ve ruhsal (manevi) gelişim olarak adlandırılan 5 alt ölçekten oluşan bir ölçektir.

Türkiye'de otistik çocuklarının ebeveynlerinde travma sonrası gelişimle ilgili bir araştırmada ölçek adapte edilmiştir (Elçi, 2004). Bu çalışma sonunda madde toplam korelasyonu düşük olan bir madde atılmış Cronbach's alpha değeri ise .88 bulunmuştur. Dirik (2006) romatizma hastalarıyla yaptığı çalışma için ölçeğin tekrar bir gözden geçirmesini yapmıştır. Bu araştırmada ölçeğin Dirik (2006) tarafından gözden geçirilen versiyonu kullanılmıştır. Yapılan faktör analizi sonuçları kalp krizi örnekleminde ve

eşlerinde uygun bir sonuç vermediği için ölçeğin orijinal faktör özellikleri TSG'nin hangi alanlarda farklılaştığının analiz edildiği hipotezlerde kullanılmıştır. Bu araştırmada, bu ölçek hem hastaya hem de eşine ikişer kez sorulmuş, onlardan hem kendilerinin TSG'sini hem de eşlerinde gözledikleri TSG'yi değerlendirmesi istenmiştir.

2.2.2. Olay Etkisi Ölçeği-Gözden Geçirilmiş

Olay Etkisi Ölçeği -Gözden Geçirilmiş formu bireyin ruminasyonlarını, tekrarlayıcı düşüncelerini ve kaçınmalarını değerlendiren 21 maddelik bir ölçektir (Horowitz, Wilner, & Alvarez, 1979). Katılımcılardan son bir hafta içinde belirtilen semptomların ne sıklıkta olduğunu değerlendirmeleri istenir. Ölçeğin yeni versiyonu gece kabusları, tekrarlatıcı düşünceler, imajlar ve hisleri (ruminasyonu) içeren maddelerden oluşur. Bu versiyonun zaman içindeki değişimleri değerlendirmede duyarlı bir ölçüm olduğu belirtilir (Weiss & Marmar, 1997).

Olay Etkisi Ölçeğinin Türkçe'ye adaptasyonu Güneş (2001) tarafından yapılmış ölçek maddelerinin yineleyen düşünceler (Cronbach's alpha =.78) ve kaçınma (Cronbach's alpha =.68) olarak iki faktörde toplandığı görülmüştür. Ölçeğin güvenirliği ise .75 olarak bulunmuştur. Ölçeğin gözden geçirilmiş versiyonunun Türk örnekleminde standardizasyonu Işıklı (2006) tarafından yapılmıştır. Bu çalışmada Işıklı'nın (2006) uyarladığı form kullanılmıştır.

2.2.3. Beck Depresyon Ölçeği

Beck Depresyon Envanteri, 21 maddeden oluşan, 4 seçenekli bir ölçektir. Ölçek,

depresyon semptomlarının şiddetini ölçmektedir. Ölçeğin her bir maddesi 0 ile 3 puan arasında değerlendirilmektedir; bu envanterden alınabilecek en düşük puan 0, en yüksek puan ise 63'tür. Ölçekten alınan toplam puanların yüksekliği depresyon semptomlarının da o ölçüde arttığını göstermektedir. Orijinal ölçeğin iki formu bulunmaktadır. Her iki formu da, Beck ve arkadaşları (Beck, Ward, Mendelson, Mock & Erbaugh, 1961; Beck, Rush, Shaw, & Emery, 1979) tarafından geliştirilmiştir. 1961'de geliştirilen formun Türkçe'ye uyarlaması Beck Depresyon Ölçeği adı altında, Tegin (1980) tarafından; 1979 formunun Türkçe'ye uyarlaması ise Beck Depresyon Envanteri adı altında, Hisli (1988, 1989) tarafından yapılmıştır. Her iki uyarlama çalışmasında da kapsamı aynı fakat ifadeleri farklı olan 21 madde bulunmaktadır. Bu çalışmada Hisli'nin çevirisini yaptığı Beck Depresyon Envanteri kullanılmıştır. Tegin (1980) tarafından Beck Depresyon Envanteri'nin Depresyonda Bilişsel Tepkiler Ölçeği ile korelasyonuna bakılmış ve korelasyonun normal örneklem için .20, depresif örneklem için .52 ve şizofrenik örneklem için .33 olduğu bulunmuştur. Türkçe'ye uyarlama çalışmalarında envanterin iki yarım test güvenirlik katsayısı, üniversite öğrencilerinde .78 (Tegin, 1980), .74 (Hisli, 1989) ve depresif hastalarda .61 (Tegin, 1980) olarak bulunmuştur. Ayrıca ölçeğin Minnesota Çok Yönlü Kişilik Envanteri'nin Depresyon alt ölçeği ile karşılaştırıldığı güvenilirlik çalışmasında, korelasyon katsayıları psikiyatrik örneklem için .63 ve üniversite öğrencileri örneklemi için .50'dir (Hisli, 1988; Hisli, 1989).

2.2.4. Dine Katılım ve Dini İnanç Ölçeği

Wuthnow (1994; cited in Calhoun et al. 2000) tarafından hazırlanmış üç soru hem bireylerin dine katılımını hem de dini inanç boyutlarını içermektedir. Katılımcılara

“yakın zamanda dini aktivitelere katılıp katılmadıkları”, “ Ne sıklıkta dini aktivitelere katıldıkları”, ve “Dinin yaşamlarında ne kadar önemli bir unsur olup olmadığı” sorulmuştur. Calhoun ve arkadaşlarının (2000) çalışmasında, ölçeğin iç tutarlılığı .67 olarak bulunmuştur. Çalışmada bu sorularda değişiklik yapılmıştır. Dine katılımı belirleyen olaydan önce ve olaydan sonra ne sıklıkta dini aktivitelere katıldıklarını içeren iki soru ve dini inancı belirleyen olaydan önceki ve sonraki dini inançlarının nasıl olduğunu içeren iki soru olmak üzere toplam dört soru sorulmuştur.

2.2.5. Baş Etme Stratejileri Ölçeği

Duygu odaklı baş etme stilleri ve problem odaklı baş etme stillerini, çeşitli boyutlarda ölçmeyi amaçlayan Baş Etme Becerileri Ölçeği, Folkman ve Lazarus tarafından (1980) geliştirilmiştir. Ölçek 74 maddeden oluşmaktadır. Türkçe adaptasyonu Siva tarafından 1991 yılında yapılmış iç tutarlılık katsayısı .90 olarak bulunmuştur. Gençöz, Gençöz ve Bozo (2006) ölçeğin “duygu odaklı baş etme”, “problem odaklı baş etme” ve “sosyal destek arama” olmak üzere 3 üst boyuttan oluştuğunu vurgulamış ve bu boyutların psikometrik özellikleri güvenilir ve geçerli bulunmuştur.

2.2.6. Çok Boyutlu Algılanan Sosyal Destek Ölçeği

Zimet ve arkadaşları tarafından 1988 yılında geliştirilen ölçek, kişinin arkadaşlarından, ailesinden ve yaşamındaki diğer önemli kişilerden aldığı sosyal desteğin düzeyini değerlendirmeyi amaçlamaktadır. Ölçeğin orijinal formunda iç tutarlılık katsayısı .79 ile .98 arasında değiştiği, 2-3 aylık periyotlarla ölçülen test-tekrar test güvenirliğinin .72 ile .85 arasında değiştiği bulunmuştur.

Ölçeğin Türkçe adaptasyonu Eker ve Arkar (1995) tarafından yapılmış, daha sonra Eker, Arkar, ve Yaldız (2000) adaptasyon çalışmasını yapmıştır. Psikiyatrik hastalar, hasta ziyaretçileri ve normal örneklemde ölçek uygulanarak ölçeğin psikometrik değerleri test edilmiştir. Ölçeğin iç tutarlılık katsayısı .80 ile .95 arasında değişmektedir. Araştırmada katılımcılara soruları kalp krizinin yarattığı etkiyle baş etmek için neler yaptıklarını belirtmeleri istenmiştir.

2.2.7. Psikolojik Dayanıklılık Ölçeği

Psikolojik Dayanıklılık Ölçeği, Durak ve Motan (2006) tarafından literatürde var olan psikolojik dayanıklılık ölçeklerinin gözden geçirilmesi yoluyla hazırlamışlardır. Türk örnekleminde ölçeğin kontrol, bağlılık ve yaşam için yenilik olarak görme/ olaydan olumlu etkilenme alt boyutlarının çalışması sonucunda bu konuyu kapsamlı şekilde değerlendirmek üzere geliştirilmiş bir ölçektir. Ölçek 19 maddeden oluşmaktadır. Bağlılık (6 madde), kontrol (7 madde) ve yaşam için yenilik olarak görme/ olaydan olumlu etkilenme (6 madde) boyutlarını içeren 3 faktöre sahiptir. Dörtlü Likert tipi bir ölçektir. Ölçeğin iç tutarlılığı .87 olarak bulunmuştur.

2.2.8. Kontrol Odağı Ölçeği

Dağ (2002) tarafından 5'li Likert tipi bir ölçek olarak geliştirilmiş bir ölçektir. Kırk-yedi maddelik olarak hazırlanan bu ölçeğin, iç tutarlılığı .92 olarak bulunmuştur. Ölçeğin bireysel kontrol (18 madde, 12.62%, $\alpha = .82$), şansa inanma (11 madde, 8.6%, $\alpha = .79$), çabalamanın anlamsızlığı (10 madde, 7.7%, $\alpha = .76$), kadercilik (3 madde,

6.03%, α = .74), ve adil olmayan dünya inancı (5 madde, 5.2%, α = .61) olarak adlandırılan 5 faktörü vardır.

2.2.9 Rosenberg Benlik Saygısı Ölçeği (Rosenberg, 1965)

Rosenberg Benlik Saygısı Ölçeği, 10 maddeden oluşan (Rosenberg, 1965) 4'lü Likert Tipi bir ölçektir. Bu ölçek, Çuhadaroğlu (1986) tarafından ilk kez Türk örneklemine uyarlaması yapılmıştır. Ayrıca, Tuğrul (1994) tarafından da psikometrik özellikleri incelenmiş ve iç tutarlılığı .76 olarak bulunmuştur.

2.2.10 Demografik Bilgi Formu

Hastaların ve eşlerinin yaşı, eğitimi, cinsiyeti, eğitim durumu, hastalığın özellikleri, hastalık öncesi ve sonrası değişkenler (geniş aile, çocuklar ve eşle ilişkiler, ekonomik problemler vb), dini inanç, eş ilişkileri, hastalıkla ilgili algılanan tehdit, hastalığın algılanan seyri, hastalıkla ilgili uygulanan tedavi yöntemleri, hastalığın yarattığı etkiler (nötr, olumlu ve olumsuz sonuçları belirleyen açık uçlu sorular), tedavide istenen davranış değişikliklerini (diyet, spor, alkol ve sigara kullanmama vb) yapma durumu gibi verileri elde etmek üzere uygulanmıştır.

2.3 Prosedür

Test bataryası, Bolu ilindeki (Abant İzzet Baysal Tıp Fakültesi Hastanesi, İzzet Baysal Devlet Hastanesi, ve Bolu Köroğlu Devlet Hastanesi) çeşitli hastanelerde kardiyoloji birimlerine başvuran kişilere uygulanmıştır. Uygulama öncesinde hastanelerin idarelerinden ya da etik komitelerinden araştırmanın yapılabilmesi için izin

istenmiştir. Katılımcılara kardiyoloji servisinden alınan iletişim bilgileri kanalıyla ulaşarak hastaneye davet etmek ya da hastaneye geldikleri rutin kontroller sırası onlarla görüşmek yollarıyla görüşülmüştür. Araştırmaya katılmayı gönüllü olarak kabul eden katılımcılarla görüşülmüştür.

3. Bulgular

Araştırmada, MI'lı hastalarla eşlerinin TSG'leri arasındaki fark, kendini değerlendirme tipi ölçek yoluyla rapor edilen TSG'nin geçerliliği, ve Schaefer ve Moos'un travma modelleri olmak üzere üç ana başlıkta analizler yapılmıştır.

3.1 MI'lı Hastalarla Eşleri Arasındaki TSG Gelişiminin Karşılaştırılması

MI'lı hastalar ve eşlerinin TSG skorları arasında oldukça yüksek bir korelasyon bulunmuştur ($r = .77$, $p < .001$). Hastalar ve eşleri arasındaki puanlar arasında bir fark olup olmadığını değerlendirmek için, toplam skorlar üzerinde tekrarlı ölçümlü ANCOVA, TSG'nin alt ölçekleri üzerinde ise MANCOVA yapılmıştır. Hasta örnekleminin büyük çoğunluğu erkeklerden eş örnekleminin de büyük çoğunluğu bayanlardan oluştuğu için, cinsiyet her iki analizde de kontrol değişkeni olarak alınmıştır. TSG ya da TSG'nin alt faktörleri bağımlı değişken, hasta ya da eşin değerlendirmesi ise bağımsız değişken olarak alınmıştır. Sonuçlara bakıldığında sadece kişisel güçlülük alt boyutunda anlamlı bir farklılık olduğu görülmüştür [$F = 11.25$, $p < .001$]. MI'lı hastaların ($M = 11.41$, $SE = .45$) eşlerinden ($M = 9.87$, $SE = .33$) daha fazla skorlar aldıkları görülmüştür. Toplam TSG puanı ya da diğer alt ölçekler arasında ise hiçbir gruplar arası fark gözlenememiştir.

3.2 MI'lı Hastalar ve Eşlerinin TSG'lerinin Doğruluğu: Dolaylı Ölçümler

Dolaylı ölçümler yoluyla, hem MI'lı hastalar hem de eşlerin TSG skorlarının doğruluğu test edilmeye çalışılmıştır. MI'lı hastaların kendilerinin belirttiği TSG ile eşlerinin MI'lı hastalarda gözlediği puanlar arasındaki tutarlılık, eşlerin kendilerinin belirttiği TSG ile MI'lı hastalar tarafından eşlerde gözlenen TSG arasındaki tutarlılık, TSG ile davranış boyutları arasındaki tutarlılık, TSG ile açık uçlu sorular arasındaki tutarlılık ayrı ayrı analiz edilmiştir.

3.2.1 MI'lı Hastaların Kendilerinin Belirttiği TSG ile Eşlerinin Hastalarda Gözlediği TSG Arasındaki Tutarlılık

MI'lı hastaların kendilerindeki TSG ile eşlerin hastalarda gözlediği TSG skorları arasında orta düzeyde pozitif yönlü bir korelasyon bulunmuştur ($\underline{r} = .58$, $\underline{p} < .001$). Hastaların kendilerinin belirttiği TSG ile eşlerin hastalarda gözlediği TSG arasında anlamlı bir fark olup olmadığını değerlendirmek için toplam skorlar üzerinde tekrarlı ölçümlü ANCOVA, TSG'nin alt ölçekleri üzerinde ise MANCOVA yapılmıştır. Tekrarlı ölçümlü ANCOVA sonuçlarında cinsiyetin etkisi kontrol edildiğinde, TSG toplam skoru üzerinde MI'lı hastaların ($M = 64.85$, $SE = 3.43$) kendilerine eşlerinin onlarda gözlediğinden ($M = 58.38$, $SE = 3.65$) çok daha fazla puanlar aldıkları görülmüştür, $\underline{F}$ $(1,134) = 3.86$, $\underline{p} < .05$. Öte yandan, MANCOVA sonuçlarına bakıldığında, alt ölçeklerde anlamlı bir farklılık gözlenmemiştir; Wilks' $\Lambda = .97$. $\underline{F}$ $(5,130) = .910$, n.s.

3.2.2 Eşlerin Kendilerinin Belirttiği TSG ile MI'lı Hastaların Eşlerinde Gözlediği TSG Arasındaki Tutarlılık

Eşlerin kendilerindeki TSG ile MI'lı hastaların eşlerinde gözlediği TSG skorları arasında orta düzeyde pozitif yönlü bir korelasyon bulunmuştur ($r = .55$, $p < .001$). Eşlerin kendilerinin belirttiği TSG ile MI'lı hastaların eşlerinde gözlediği TSG arasında anlamlı bir fark olup olmadığını değerlendirmek için toplam skorlar üzerinde tekrarlı ölçümlü ANCOVA, TSG'nin alt ölçekleri üzerinde ise MANCOVA yapılmıştır. Tekrarlı ölçümlü ANCOVA sonuçlarına bakıldığında, cinsiyetin etkisi kontrol edildiğinde, TSG toplam skoru üzerinde eşlerle MI'lı hastaların eşlerde gözlediği puanlar arasında anlamlı bir farklılık gözlenmemiştir F (1,134) = .57, n.s. Aynı şekilde TSG'nin alt ölçekleri arasında da anlamlı farklılık bulunamamıştır; Wilks' Λ= .98. F (5,130) = 2.50, n.s.

3.2.3 Davranış Endeksleri ve TSG Arasındaki Fark

Hem hastalara hem de eşlerine kalp krizi öyküsünden önce ve sonra diyet, sigara, alkol, spor, kilo gibi konulara ne ölçüde dikkat ettikleri sorulmuştur. Daha sonra bu soruların toplamından (kalp krizinden sonraki tutumlardan önceki tutumları çıkararak) elde edilen toplam bir puan %25 üst ve alt skorları alanların belirlenmesiyle kategorik hale getirilmiştir. Böylece yüksek miktarda davranış değişimi sergileyenle düşük miktarda davranış değişimi sergileyen bireylerin TSG puanlarının anlamlı farklılıklar gösterip göstermediği analiz edilmiştir.

MI'lı hastalara bakıldığında, cinsiyet etkisi kontrol edildiğinde, toplam TSG skoru üzerinde düşük ve yüksek davranış değişiminin bir etkisi olmadığı görülmüştür; F (1,50) = 1.40, n.s. Ancak, TSG'nin alt ölçekleri bağımlı değişken, davranış değişimi

bağımsız değişken ve cinsiyet kontrol değişkeni olarak alındığında MANCOVA sonuçları anlamlı bulunmuştur; Wilks' Λ= .72. F (5,46) = 3.5,p <.01. Alt ölçeklere bakıldığında sadece "hayatın değerini bilme" alt boyutunun anlamlı bir farklılık gösterdiği, yüksek davranış değişimi gösteren MI'lı hastaların (M = 11.04, SE = .97) düşük davranış değişimi gösteren (M = 7.70, SE = .69) hastalara göre daha fazla miktarda puanlar aldıkları görülmüştür [F = 7.66, p <.01].

Eşlere bakıldığında, davranış değişim düzeyinin ne toplam skor üzerinde [F (1,51) = .48, n.s.] ne de TSG'nin alt ölçekleri üzerinde [Wilks' Λ= .97. F (5, 46) = .29, n.s] anlamlı farklılık yaratmamıştır

3.2.4 Açık Uçlu Sorular ve TSG Arasındaki Tutarlılık

Hem MI'lı hastalara hem de eşlere üç açık uçlu soru yöneltilmiştir: bir nötr (kalp krizinden nasıl etkilendiler?), bir olumlu sonuçlar (kalp krizi ne gibi olumlu sonuçlar çıkardı?) ve olumsuz sonuçları içeren sorular (kalp krizi ne gibi olumsuz sonuçlar çıkardı?). Açık uçlu sorular yargıcılar (iki psikolog) tarafından içerik analizi doğrultusunda "olumlu tepkiler ('Yaşamın değerini anladım')", "olumsuz tepkiler ('Çok üzüldüm')", "hem olumlu hem de olumsuz tepkiler ('Kendimi iyi hissediyorum ama hastane kontrolleri beni kaygılandırıyor')", "kaderci tepkiler ('Allah'a olan inancım arttı)" ve "hiçbir fikir olmama" olmak üzere 5 ayrı kategoride değerlendirilmiştir. Gözlemciler arası tutarlılık (Cohen's kappa) tatminkar düzeyde bulunmuştur.

Kaderci düşünceler söyleyen veya hiçbir düşünce belirtmeyen kişiler analizden birinci tip hatayı azaltmak için çıkarılarak, açık uçlu sorulara verilen tepki türleri bağımsız değişken, TSG ise bağımlı değişken olarak alınmış ve tek yönlü ANOVA analizleri yapılmıştır. Ancak, ne MI'lı hastalarda ne de eşlerinde her üç tip soruya

verilen tepki türlerinin TSG üzerinde anlamlı farklılıklar yaratmadığı görülmüştür. Ayrıca TSG de kategorik hale getirildiğinde (düşük ve yüksek düzeyde TSG'si olanlar), TSG düzeyi ile açık uçlu sorulara verilen tepki türleri arasında MI'lı hasta örnekleminde anlamlı farklılık gözlenememiştir, χ^2 (2) = 4.83, n.s. Benzer şekilde, eşler için de anlamlı bir farklılık gözlenmemiştir, χ^2 (2) = 2.78, n.s.

3.3 Schaefer ve Moos'un Yaşam Krizleri ve Kişisel Gelişim Modelini Test Etme

Bireysel ve çevresel kaynakların, olayı algılama ve bilişsel işlemleme-baş etme boyutlarının TSG üzerindeki etkisini inceleyebilmek için Yapısal Eşitlik Modeli, AMOS programı aracılığı ile analiz edilmiştir. MI'lı hastalar ve eşlerinde model ayrı ayrı test edilmiştir.

Bireysel kaynaklar gizil değişkeni, yaş cinsiyet, kontrol odağı, öz güven, kontrol, bağlılık, olayı yeniden olumlu değerlendirme, depresyon gibi gözlenen değişkenlerle değerlendirilmiştir. Çevresel kaynaklar gizil değişkeni için, aileden, arkadaştan ve önemli kişilerden alınan sosyal destek, eşler arasındaki ilişkinin kalitesi, çocuk sayısı, 18 yaşından küçük aileyle birlikte yaşayan çocuklar gibi gözlenen değişkenleri seçilmiştir. Olayı algılama gizil değişkeni, başka bir hastalığa sahip olma durumu, olayla ilişkili algılanan tehdit, hastalığın algılanan gidişatı, ve tanıdan sonraki geçen zaman gözlenen değişkenlerini içermektedir. Bilişsel işlemleme-baş etme gizil değişkenini değerlendirmek için, ruminasyon, tetikte olma, kaçınma, problem odaklı baş etme, duygu odaklı baş etme, dolaylı baş etme, dini aktivitelere katılım, ve dini inanç gözlenen değişkenleri alınmıştır.

3.3.1 MI'lı Hastalarda TSG Modelinin Test Edilmesi

Yapısal Eşitlik Modeli, MI'lı hasta örnekleminde iki kez test edilmiştir. Önerilen ilk model χ^2 serbestlik derecesi oranına uymuş olsa da (χ^2 */df* = 2.5) İyilik Uyum Endeksi sonuçları uygun bulunmamıştır; RMSEA=.100, CFI=.614, RFI=.420, IFI=.630. Modelde değişiklikler yapıldığında, sonuçlar tatminkar düzeyde bulunmuştur (χ^2 */df* = 1.78) RMSEA=.072, CFI=.897, RFI=.736, IFI=.901.

Direk etkilere bakıldığında, bireysel kaynaklar hem olayı algılama (Yapısal Katsayı = 29, p <.05), hem de TSG ile ilişkilidir (Yapısal Katsayı = .20, p <.01). Benzer şekilde, çevresel kaynaklar, hem olayı algılama (Yapısal Katsayı = .23, p <.05), hem de TSG ile (Yapısal Katsayı = .24, p <.05) ilişkilidir. Ayrıca olayı algılama bilişsel işlemleme-baş etme değişkeni ile ilişkilidir (Yapısal Katsayı = -.29, p <.05). Bilişsel işlemleme-baş etmenin TSG ile direk ilişkisi görülmüştür (Yapısal Katsayı = .21, p <.01).

Dolaylı etkilere bakıldığında ise çevresel kaynaklar, bilişsel işlemleme ve olayı algılama yoluyla TSG'yi etkilemektedir (Yapısal Katsayı =.15, p <.05). Benzer şekilde, bireysel kaynaklar bilişsel işlemleme ve olayı algılama yoluyla TSG'yi etkilemektedir (Yapısal Katsayı =-.12, p <.05).

Olayı algılama değişkeninin varyansının % 13'ü bireysel ve çevresel kaynaklar gizil değişkenleriyle açıklanmıştır. Bilişsel işlemleme- baş etmedeki varyansın % 8'i olayı algılama gizil değişkeni ile açıklanmıştır. TSG'deki % 14 varyans ise üç gizil değişken tarafından açıklanmıştır: bireysel kaynaklar, çevresel kaynaklar ve bilişsel işlemleme-baş etme.

3.3.2 Eşler Örnekleminde TSG Modelinin Test Edilmesi

Yapısal Eşitlik Modeli eşlerde MI'lı hastalarda yapıldığı gibi iki kez test edilmiştir. Önerilen ilk model χ^2 serbestlik derecesi oranına uymuş olsa da (χ^2 /*df* = 2.16) İyilik Uyum Endeksi sonuçları uygun bulunmamıştır; RMSEA=.088, CFI=.610, RFI=363, IFI=.630. Modelde değişiklikler yapıldığında sonuçlar tatminkar düzeyde bulunmuştur (χ^2 /*df* = 2.12); RMSEA=.086, CFI=.706, IFI=.720.

Direk etkilere bakıldığında, bireysel kaynaklar hem olayı algılama (Yapısal Katsayı = =-.573, p <.05), hem de TSG ile ilişkilidir (Yapısal Katsayı =.15, p <.01). Çevresel kaynaklar ise TSG ile ilişkiliyken (Yapısal Katsayı = .19, p <.05), olayı algılama ile ilişkili değildir (Yapısal Katsayı = 15, p = n.s). Ayrıca olayı algılama, bilişsel işlemleme-baş etme değişkeni ile ilişkilidir (Yapısal Katsayı = .45, p <.05). Bilişsel işlemleme-baş etmenin TSG ile direk ilişkisi görülmüştür (Yapısal Katsayı = .39, p <.001).

Dolaylı etkilere bakıldığında ise çevresel kaynaklar, bilişsel işlemleme ve olayı algılama yoluyla TSG'yi etkilememektedir (Yapısal Katsayı =.08, n.s.). Bireysel kaynaklar ise bilişsel işlemleme ve olayı algılama yoluyla TSG'yi anlamlı şekilde etkilemektedir (Yapısal Katsayı =-.27).

Olayı algılama değişkeninin % 35 varyansı bireysel ve çevresel kaynaklar gizil değişkenleriyle açıklanmıştır. Bilişsel işlemleme- baş etmedeki % 20 varyans, olayı algılama gizil değişkeni ile açıklanmıştır. TSG'deki % 18 varyans ise üç gizil değişken tarafından açıklanmıştır: bireysel kaynaklar, çevresel kaynaklar ve bilişsel işlemleme-baş etme.

4. Tartışma

Bu çalışmanın amacı, TSG'nin kalp krizi sonrasında çiftler arasında çok boyutlu olarak değerlendirilmesidir. Öncelikle MI'lı hastaların ve eşlerinin TSG'si değerlendirilmiştir. Ayrıca TSG'nin doğruluğu dolaylı ölçüm araçları ile değerlendirilmiştir. Bu amaçla, kendini değerlendirme türü ölçekle rapor edilen TSG'nin, gözlenen TSG, davranış endeksleri ve açık uçlu sorularla tutarlılığı öncelikle incelenmiştir. Bunlara ek olarak, Yapısal Eşitlik Modeli ile Schaefer ve Moos'un TSG modeli hem hastalarda hem de eşlerinde test edilmiştir.

4.1 TSG'nin MI'lı Hastalar ve Eşlerinde Gelişimi

TSG'nin büyük grupları etkileyen bir olgu olduğu (Bloom, 1998; Cohen et al., 1998b) ancak çok az çalışmanın bu konuyu ortaya koymaya yönelik olduğu bilinmektedir. Kişisel rahatsızlığın fazla olduğu kişinin daha yüksek oranda TSG yaşayacağı önceki çalışmalarda ortaya konulmuştur (Francis, 2004). Bu nedenle, bu çalışmada MI'lı hastaların, kalp krizini geçirmiş kişiler olarak, eşlerinden daha fazla miktarda TSG'ye sahip oldukları beklenilmiştir. Ancak, bu fark sadece kişisel olarak kendini güçlü hissetme alt boyutunda gözlenmiştir. Benzer sonuçlar HIV/AIDS hastalarına bakan kişilerde (Cadell et al., 2003) de gözlenmiştir. Diğer alt faktörler ve toplam TSG üzerinde gözlenemeyen farklılık ise çiftler arasında TSG'nin eş zamanlı gözlendiğini düşündürebilir. Bu açıdan bakıldığında, çiftlerin yanı sıra çocuklar ve arkadaşlar gibi diğer kişilerin de TSG'sinin değerlendirilmesi yoluyla kişisel rahatsızlığın rolünün daha net bir şekilde değerlendirilebileceği düşünülmektedir.

4.2 MI'lı Hastalar ve Eşlerinde TSG'nin Doğruluğu: TSG'nin Dolaylı Kanıtları

TSG'nin sadece kendini değerlendirme türü ölçekler yoluyla değerlendirilmesinin TSG skorlarının abartılma olasılığını da beraberinde getirdiği ileri sürülmektedir (Park & Helgeson, 2006). Bireylerin sadece olumlu olayları hatırlama eğiliminde olması (Smith & Cook, 2004), ve kendilerini tehlikeden koruma eğilimi nedeniyle olayda anlamlı kısımları görme eğilimi (Davis & McKearney, 2003) önceki araştırmalar tarafından vurgulanmıştır. Çeşitli çalışmalar bu olasılıkların nasıl test edilebileceği üzerinde durmuştur. Bu çalışmada üç yöntem yoluyla TSG'nin doğruluğu değerlendirilmeye çalışılmıştır: TSG'nin bireyin kendisi tarafından rapor edilmesi ile eşi tarafından gözlenmesi arasındaki tutarlılık, TSG ve davranış değişimleri arasındaki tutarlılık, ve açık uçlu sorularla TSG arasındaki tutarlılık.

İlk olarak, Cordova (2001) bireyin kendisinin travma deneyimini değerlendirmesi ile önemli diğer kişiler tarafından gözlenilmesi arasındaki skorların karşılaştırılmasını önermiştir. Bu çalışmada, MI'lı hastalar kendi TSG'lerini değerlendirmiş, eşler de MI'lı hastalarda gözledikleri değişimi değerlendirmiştir. Bu iki değerlendirmeye bakıldığında değişkenler arasında anlamlı bir korelasyon görülmüştür ($\underline{r} = .58$, $\underline{p} < .001$). Benzer şekilde, eşler kendi TSG'lerini değerlendirmiş, MI'lı hastalar da eşlerinde gözledikleri değişimi değerlendirmiş ve bu değişkenler arasında da anlamlı korelasyon elde edilmiştir ($\underline{r} = .55$, $\underline{p} < .001$).

Korelasyon sonuçlarını daha detaylı inceleyebilmek için cinsiyetin kontrol değişkeni olarak alındığı ANCOVA ve MANCOVA analizleri yapılmıştır. Sonuçlara bakıldığında, MI'lı hastaların kendilerini değerlendirdiği TSG'nin eşlerinin onlarda gözlediklerinden daha yüksek olması ya hastaların TSG sonuçlarını abartma eğilimlerini

ya da eşlerinin MI'lı hastaların TSG'lerini küçümsediklerini düşündürmüştür. Dolayısıyla, bireylerin kendisini koruması ihtiyacı (Nolen-Hoeksema, & Davis, 2004) ya da stresi bir şekilde azaltma (Park, 2004; Frazier & Kaler, 2006) gibi bir motivasyonlar MI'lı hastalarda olabilir Öte yandan, TSG alt faktörleri arasında MI'lı hastaların kendilerin değerlendirmeleri ile eşlerin onları gözlemlemesi skorları arasında anlamlı farklılık olmaması TSG'nin doğruluğunu düşündürebilir.

Eşlerin kendilerini değerlendirdiği TSG ile hastaların eşlerine ilişkin gözlemleri arasındaki farka bakıldığında hem toplam TSG hem de TSG'nin alt ölçekleri arasında bir fark bulunamamıştır. Bu sonuçlar eşlerin TSG'sinin doğruluğundan bahsedilebilir.

Davranış değişimi ile TSG arasındaki ilişki de bu çalışmada incelenmiştir. Kalp krizi geçiren kişilere sağlıklarını tekrar kazanabilmeleri için, doktorlar sağlıksız davranışlarını (örn. Sigarayı azaltma, alkol tüketmeme, yağlı yemek yeme vb.) değiştirmeleri önerir. Dolayısıyla davranış değişimleri TSG'nin varlığına ilişkin bir kanıt olabilir. Analiz edildiğinde, MI'lı hastaların sadece "hayatın değerini bilme" alt boyutunda farklılık olduğu göze çarpmıştır. Yüksek miktarda davranış değişimi sergileyen hastaların düşük düzeyde davranış değişimi sergileyenlere oranla daha fazla TSG'ye sahip oldukları bulunmuştur. Diğer alt boyutlarda fark gözlenememiş olması (örn. manevi gelişim) davranış değişiminin bu alt boyutlarla olan ilişkisinin zayıf hatta ilişkisiz olmasından ileri gelebilir. Dolayısıyla diğer alt boyutların değerlendirilmesinde başka ölçümler (örn. doğal ortamda direk gözlem, yakın akrabalara sormak vb.) tercih edilebilir.

Öte yandan, eşlerin davranış değişimleri ve TSG'leri arasındaki ilişki analiz edildiğinde yüksek ve düşük davranış değişimi sergileyen eşlerde TSG anlamlı şekilde

farklılaşmamıştır. Dolayısıyla, TSG'nin yanlı şekilde doldurulmuş olabileceği düşünülebilir. Benzer bir yorum farklı bir örneklemle çalışan Milam (2006) tarafından yapılmıştır. HIV hastalarında davranışsal değişimle TSG arasında anlamlı bir ilişki bulunamadığında, TSG skorlarının algısal bir yanılgı olabileceği söylenmiştir. Bu durum eş örneklemi için geçerli olabilir. Öte yandan, eşlerin düşük ya da orta sosyoekonomik düzeyden gelmiş olmaları onların spor yapma ya da diyet planını takip etme açısından sınırlılıkları olabileceğini de akla getirmektedir.

Açık uçlu sorularla TSG'nin karşılaştırılması literatürde önerilmektedir (Park & Helgeson, 2006). İçerik analizi yapılan açık uçlu sorularla TSG arasındaki ilişki incelendiğinde ne eşlerde ne de hastalarda açık uçlu sorulara verilen tepki türleri anlamlı farklılık yaratmamıştır. Nolen-Hoeksema ve Davis (2004) açık uçlu soruların var olan gelişimi göz ardı etme gibi bir olasılığı da beraberinde getirdiğini belirtmiştir. Bunun yanı sıra, Park ve Helgeson (2006) açık uçlu soruların TSG'nin bütününü yansıtamayacağını belirtmiştir. Bu eleştiriler olmasına karşın, PTG'nin olumlu tepkilere sahip bireyleri diğerlerinden ayırt etmesi beklenmektedir. İleride yapılacak çalışmalarda, açık uçlu soruların farklı şekillerde kategori edilerek (örn, davranış, düşünce, duygu içeren ifadeler ayrı ayrı kategori edilebilir) TSG ile ilişkisine bakılması önerilebilir.

4.3 Schaefer ve Moos TSG Modelinin MI'lı Hastalar ve Eşlerinde Test Edilmesi

TSG'yi anlayabilmek için ileri sürülen modellerin test edilmesi gerekliliği daha önce vurgulanan bir konudur (Widows et al., 2005). Bu araştırmada, Schaefer ve Moos'un "Yaşam Krizleri ve Kişisel Gelişim Modeli" ampirik olarak test edilmeye çalışılmıştır. Bilindiği kadarıyla, bu model ilk kez MI'lı hastalar ve eşlerinde analiz

edilmiştir. Her iki örneklem grubunda da model ikişer kez test edilmiştir. Elde edilen bulgular karşılaştırıldığında modellerde birbiriyle benzeşen ve ayrışan taraflar ön plana çıkmaktadır.

İlk olarak iyilik uyum testleri ve χ^2 /serbestlik derecesi oranı karşılaştırıldığında, hasta örnekleminin daha geçerli sonuçlar verdiği söylenebilir. Hasta örnekleminde χ^2/ serbestlik derecesi oranı 2 katından az iken ($\chi^2/df = 1.78$) eş örnekleminde bu oran 3 katından azdır ($\chi^2/df = 2.16$). Bu sonuç, hasta örnekleminin eş örnekleminden daha geniş olmasından kaynaklanabilir.

Modelde yer alan gözlenen değişkenlerin miktarında bakıldığında ise eşlerin modelinde hastaların modelindekinden daha fazla sayıda değişkenin katkıda bulunduğu dikkati çekmektedir. Açıklanan varyanslar karşılaştırıldığında ise eşlerin modelinin daha avantajlı olduğu görülmüştür. Eşlerin modelinde olayın algılanması gizil değişkeni bireysel ve çevresel kaynaklar tarafından % 35 oranında açıklanırken, hastaların modelinde bu oran % 13' e inmektedir. Bunun yanı sıra, eşlerin modelinde bilişsel işlemleme-baş etme gizil değişkeni olay algısı tarafından % 20 oranında açıklanabilirken, bu oran hastaların modelinde % 8' e düşmektedir. Son olarak TSG'nin bireysel, çevresel kaynaklar, ve bilişsel işlemleme-baş etme gizil değişkenleri tarafından açıklandığı oran eşlerin modelinde % 21 iken, hastaların modelinde % 14'tür.

4.4 Çalışmanın Güçlü Yanları ve Kısıtlılıkları

Sistematik bir bakış elde edebilmek için modellerin test edilmesi gerekliliği daha önceden vurgulanan bir unsurdur (Mc Millen, 2004). Bu araştırmada. Schaefer ve

Moos'un modeli TSG'nin nelerle ilişkili olduğunu sistematik bir şekilde anlamak için kullanılmıştır. Ayrıca, modelin direk ve dolaylı ilişkiler hakkında bilgi vermesi TSG konusunu anlamada araştırmacıya önemli kolaylıklar sağlamıştır.

Bulgularla hem MI'lı hastalarda hem de eşlerinde TSG'nin belirleyicileri ayırt edilebilirken, küçük bir örneklem grubunun olması araştırmanın genellenebilirliğini kısıtlamaktadır. Bu çalışmanın daha geniş bir örneklemle yapılmış olması TSG'de değişkenler yoluyla elde edilen varyansın artmasını sağlayabilir.

Bunun yanı sıra, cinsiyet etkisi de araştırmada incelenememiştir. Hasta örnekleminin büyük bir çoğunluğunu erkeklerin oluşturması, eş örnekleminin ise büyük bir çoğunluğunu bayanların oluşturması cinsiyet değişkenin incelenmesini güçleştirmiştir.

Bu çalışmada değinilmeyen diğer değişkenlerin de ele alındığı çalışmalar ileride yapılacak çalışmalarda önerilebilir, örneğin A Tipi kişilik, kendini yeterli görme (Calhoun & Tedeschi, 1998b; Tedeschi et al., 1998), içedönüklük dışa dönüklük (Sheikh, 2004), yeni deneyimlere açık olma (Tedeschi, & Calhoun, 2004; Aldwin, & Levenson, 2004), ve umut dolu olma (Tennen & Affleck, 1998).

4.5 Çalışmanın Katkıları

Klinik uygulamalarda bireysel ve çevresel kaynakların, olayı algılamanın, ve bilişsel işlemleme- baş etmenin etkisi önemli sonuçlar sağlayabilir. Alanda çalışan profesyoneller bu boyutları dikkatli bir şekilde değerlendirerek (Goldsmith, et al., 2004), hastaların ve eşlerinin hastalıktan sonraki yaşam kalitelerini arttırmaya yönelik önemli

adımlar atabilirler. Hem hastalarla hem de onların eşleriyle işbirliği içinde krizden sonraki süreçte iyileşme için uygun bir ortamın yaratılması sadece hastaların değil, aile üyelerinin de yaşamını kolaylaştırabilir.

Bunların yanı sıra, bu çalışma krizden ya da önemli bir yaşam olayından sonra sadece krize direk maruz kalmış kişinin değil, aynı zamanda bu kişinin ailesinin (eşinin ve çocuklarının gibi) de değerlendirmesini akla getirmektedir. Bireysel kaynaklar (kontrol odağı, olaydan kazançlar elde edebilme, bağlılık, kontrol inancı ve öz güven), çevresel kaynaklar (aileden, arkadaştan ve önemli diğer kişiden alınan sosyal destek), olayı algılama (olaya ilişkin algılanan tehdit, hastalığın seyri, diğer bir hastalığa sahip olup olmama durumu), bilişsel işlemleme- baş etme (ruminasyon, kaçınma, tetikte olma, dolaylı ve duygu odaklı baş etme) gibi değişkenleri içeren çok boyutlu bir değerlendirme hem hastaya hem de eşine yapılacak müdahalenin içeriğini şekillendirebilir. Hatta sadece hem psikolojik hem de eğitimsel müdahaleler, hastalara ve de eşlere kalp krizinden sonra hazırlayacakları ortamı şekillendirmelerinde ve kriz sonrasındaki sürece uyum ve gelişim sağlayabilmelerine zemin hazırlayacaktır. Veri toplama sürecinde hastalar ve eşlerle yapılan görüşmelerden birinde hastalık sonrası olumlu değişimler sorulduktan sonra hastalardan birisinin kalp krizinin olumlu etkileri olabileceğini ilk kez görüşmede fark ettiğini belirtmesi bu düşünceyi destekleyen bir bulgudur. Ruh sağlığı alanında çalışan profesyonellerin travmatik problemlerle çalışırken travma sonrası gelişimi yaratmalarının önemli olduğu ifade edilmektedir (Cadell et al., 2003; Calhoun & Tedeschi, 2001).

Herhangi bir travmatik yaşantıdan ya da önemli bir yaşam olayından etkilenme derecesi kişiye bağlıdır. Bir başka deyişle, her bir kişinin olaydan etkilenme derecesi

diğerinden farklıdır. Çeşitli faktörler olay sonrasında bireylerde olumlu, olumsuz ya da hem olumlu hem olumsuz deneyimler yaşatabilmektedir (Calhoun & Tedeschi, 2004; Jang, 2004).

Özetle, TSG'nin kalp krizi yaşamış hasta ve eşinde gelişip gelişmediğinin araştırılması, kalp krizinden sonra bu hastalara ve onların ailelerine yapılacak müdahaleleri belirlemede önemli kolaylıklar sağlayacaktır. Olumlu deneyimlerin fiziksel olarak da hastaları koruduğu düşünüldüğünde, bu hastalara verilecek profesyonel yardımın önemi yadsınamaz. Ancak, bu konuda geniş örneklemlerle yapılacak ampirik çalışmalar verilecek olan profesyonel yardımın içeriğini ayırt etmede önemli kolaylıklar sağlayacaktır.

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