

THE MEDIATING ROLES OF COPING STYLES AND PERCEIVED SOCIAL  
SUPPORT BETWEEN DISPOSITIONAL HOPE AND POSTTRAUMATIC  
GROWTH/PTSD RELATIONSHIPS AMONG POSTOPERATIVE BREAST  
CANCER PATIENTS: A LONGITUDINAL STUDY

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Approval of the Graduate School of Social Sciences

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## **ABSTRACT**

### **THE MEDIATING ROLES OF COPING STYLES AND PERCEIVED SOCIAL SUPPORT BETWEEN DISPOSITIONAL HOPE AND POSTTRAUMATIC GROWTH/PTSD RELATIONSHIPS AMONG POSTOPERATIVE BREAST CANCER PATIENTS: A LONGITUDINAL STUDY**

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The aim of the study was to test three mediation and a moderation models in order to investigate the mediating role of coping styles and both mediating and moderating roles of perceived social support between dispositional hope-posttraumatic growth/PTSD relationships among postoperative breast cancer patients. Accordingly, it was hypothesized that 1) Problem-focused coping styles (PFC) would mediate the relationship between dispositional hope and posttraumatic growth among postoperative breast cancer patients. 2) Emotion-focused coping style (EFC) would mediate the relationship between dispositional hope and posttraumatic stress disorder among postoperative breast cancer patients. 3) Perceived social support would mediate the relationship between dispositional hope and posttraumatic growth among postoperative breast cancer patients. 4) Perceived social support would moderate the

relationships between dispositional hope and posttraumatic growth among postoperative breast cancer patients. The study was conducted with 73 postoperative breast cancer women (mean age = 44.44, *SD* = 7.43) who were undergoing postoperative chemotherapy and radiotherapy. Participants were from different cities but receiving treatment from Dr. Abdurrahman Yurtaslan Ankara Oncology Education and Research Hospital. Measurements were applied orally to participants. According to results of the study, PFC did not mediate the relationship between dispositional hope and PTG and its subscales. Similarly, the relationship between dispositional hope and PTSD and its subscales was not mediated by EFC. Beside, perceived social support and its sources did not mediate the relationship between dispositional hope and PTG and its subscales. However, perceived social support and perceived social support from friend moderated the relationship between dispositional hope and PTG. Results, limitations, clinical implications of the study and directions for future studies were discussed in the light of the literature.

**Keywords:** Breast cancer, posttraumatic growth, dispositional hope, perceived social support

## ÖZ

### POSTOPERATİF MEME KANSERİ HASTALARINDA UMUT VE TRAVMA SONRASI GELİŞME/TRAVMA SONRASI STRES BOZUKLUĞU İLİŞKİSİ ÜZERİNDE BAŞETME STRATEJİLERİ VE ALGILANAN SOSYAL DESTEĞİN ETKİSİ : BOYLAMSAL ÇALIŞMA

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Araştırmanın amacı postoperatif meme kanseri hastalarında umut-travma sonrası gelişme/travma sonrası stres bozukluğu ilişkisi üzerinde başetme stratejilerinin mediator rolü ve algılanan sosyal desteğin hem mediator hem moderator rolünü değerlendirmek için üç mediator ve bir moderator modeli test etmektir. Buna bağlı olarak hipotezler; 1) Postoperatif meme kanseri hastaları arasında sorun odaklı başetme stratejisini kullanmanın, umut yönelimi ve travma sonrası gelişme arasındaki ilişki üzerinde mediatör rolü olabilir. 2) Postoperatif meme kanseri hastaları arasında duygu odaklı başetme stratejisini kullanmanın, umut yönelimi ve travma sonrası stres bozukluğu arasındaki ilişki üzerinde mediatör rolü olabilir. 3) Postoperatif meme kanseri hastaları arasında algılanan sosyal desteğin, umut eğilimi ve travma sonrası gelişme arasındaki ilişkide mediatör rolü olabilir. 4) Postoperatif

meme kanseri hastaları arasında algılanan sosyal desteğin, umut eğilimi ve travma sonrası gelişme arasındaki ilişkide moderator rolü olabilir. Çalışmada halen kemoterapi ya da radyoterapi alan 73 postoperatif meme kanseri hastası kadın yer aldı. Farklı şehirlerden gelen katılımcılar, Dr. Abdurrahman Yurtaslan Ankara Onkoloji Eğitim ve Araştırma Hastanesi'nde tedavi gördü. Ölçekler katılımcılara sözel olarak uygulandı. Araştırmanın sonucuna göre sorun odaklı başetme stratejisi umut eğilimi ve travma sonrası gelişme ve alt ölçekleri arasındaki ilişkiyi mediate etmemiştir. Benzer bir şekilde, umut yönelimi ve travma sonrası stres bozukluğu ve alt ölçekleri arasındaki ilişkiyi duygu odaklı başetme stratejisi mediate etmemiştir. Ayrıca, algılanan sosyal destek ve kaynakları, umut eğilimi ve travma sonrası gelişme ve alt ölçekleri arasındaki ilişkiyi mediate etmemiştir. Ancak, algılanan sosyal destek ve arkadaştan algılanan sosyal destek umut eğilimi ve travma sonrası gelişme arasındaki ilişkiyi moderate etmiştir. Çalışmanın sonuçları, sınırlılıkları, klinik anlamdaki uygulamaları ve gelecek çalışmalar için öneriler literatür doğrultusunda tartışılmıştır.

Anahtar kelimeler: Meme kanseri, travma sonrası gelişim, umut yönelimi, algılanan sosyal destek.

**To My Family**

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## **CHAPTER I**

### **INTRODUCTION**

Cancer is a chronic, life-threatening disease that requires highly stressful medical procedures. Breast cancer, which is the most common cancer type among women (% 23 of all cancer diagnosis in women) in the world, leads women to either experience great emotional distress and/or physical problems or adjust to this new situation in a positive way (Tahan et al., 2009). Therefore, both posttraumatic stress disorder (PTSD)/posttraumatic stress like-symptoms and posttraumatic growth (PTG) may be prevalent in women with breast cancer diagnosis. Amir and Ramati (2002) suggested that survivors of breast cancer have significantly higher rates of full and partial PTSD; and posttraumatic symptoms are a common sequence after recovery from breast cancer. On the other hand, numerous studies demonstrated that women diagnosed with breast cancer and even their husbands develop PTG, which can be defined as positive life changes in the aftermath of the coping with breast cancer (Weiss, 2002).

There are several factors, such as personality characteristics like dispositional hope (Ho et al., 2011), coping styles (Widows et al., 2005), and perceived social support (Bozo et al., 2009) that contribute to the development of PTG. Coping styles refer to the way in dealing with problems. There are two main coping styles which are emotion focused coping (EFC) and problem focused coping (PFC) styles. Positive reappraisal (a component of PFC) predicted positive mood and perceived health at 3 and 12 months as well as PTG at 12 months for women with breast cancer

diagnosis at study entry (Sears et al., 2003). On the other hand, suppression (a component of EFC) was associated with PTSD for women with breast cancer diagnosis (Amir & Ramati, 2002). Accordingly, PFC style seems to predict PTG, whereas, EFC style seems to predict negative adjustment or even PTSD, but not PTG. Another factor that contributes to PTG is personality characteristics, such as dispositional hope. According to Snyder (2002), hope is a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals). Irving and colleagues (1998) suggested that women, who are low on dispositional hope, see their breast cancer as “threatening” and they use more EFC strategies. On the other hand, women who are high on dispositional hope use positive appraisals and they do not use denial or wishful thinking (EFC strategies) in their response to the treatment of breast cancer. Therefore, it can be assumed that the degree of “dispositional hope” may determine the type of the coping strategy used by the breast cancer patients, which in turn may affect their adjustment to this traumatic event. Besides dispositional hope and coping styles, perceived social support may also be related to PTG. It was shown that higher levels of PTSD symptoms were associated with less social support (Andrykowski & Cordova, 1998). On the other hand, Costar (2005) demonstrated that social support was related to PTG, with higher levels of support related to greater positive growth.

In the light of the literature mentioned above, the aim of this study is to test three mediation models in order to investigate the mediating role of coping styles and perceived social support between dispositional hope-posttraumatic growth/PTSD relationships among postoperative breast cancer patients longitudinally. Accordingly, in the first part of the introduction, PTSD and PTG among women diagnosed with

breast cancer will be described. In the next part, dispositional hope, coping styles, and perceived social support and their relationship with PTSD and PTG will be explained in order. Afterwards, the aims of the study will be stated.

## **1.1 Breast Cancer**

Breast cancer is the most prevalent type of cancer among women (23 % of all cancers) with nearly 1.15 million new cases in 2002. Despite its high prevalence, breast cancer is the fifth most common cause of cancer deaths because of its relatively favorable prognosis. Survival and mortality rates of breast cancer are different in developing and developed countries. In developed countries, survival rate is 73 % whereas in developing countries, this rate decreases to 53 % (Globalstatistics, 2002). Accordingly, the mortality rate of breast cancer is higher in developing countries (43 %, 221.000 deaths / 514.000 cases) as compared to developed countries (30 %, 190.000 deaths / 636.000 cases) (Özmen, 2006). In 2006, in Europe (including 38 countries), breast cancer was the most common cancer type among European women with 429.900 cases (28.9 % of total cancer cases). In addition, breast cancer was ranked in the third place considering total cancer deaths when considering both sexes (131.900, 7.8 %) in Europe. However, when women statistics are taken into account, breast cancer is the most common cause of cancer death (131.900) in Europe (Ferlay et al., 2007).

According to National Breast Cancer Registry Programme, 11.208 breast cancer cases were recorded till February 2008. Patient's registrations came from 13 breast centers localized in 8 cities (İstanbul, Izmir, Ankara, Bursa, Kocaeli, Aydin,

Diyarbakir, and Adana) (Özmen, 2006). According to statistics, incidence and prevalence rates of breast cancer have increased three times in last decades. Globokan 2002 data (2007) indicated that breast cancer is one of the most prevalent and common cause of cancer deaths among women in Turkey (Eryılmaz, et al., 2010). Women diagnosed with breast cancer at ages  $\leq 40$ , 41-50, 51-70, and  $\geq 70$  constitute 20.2%, 31%, 40.7%, and 8.2% of all breast cancer patients in Turkey, respectively (Özmen, 2006). As it is seen, breast cancer is one of the most prevalent types of cancer and an important risk for almost all age groups in Turkey.

Epidemiological factors demonstrated that breast cancer is a heterogeneous disease and every woman has risk in developing breast cancer sometime in her life. However, the literature has identified some risk factors that can influence women's probability of developing breast cancer (McCreedy, 2004). These risk factors are age, age at menarche and menopause, age at first pregnancy, family history, lifestyle (diet, weight, alcohol and smoking), exogenous hormones (oral contraceptive, hormone replacement therapy), and radiation (McPherson et al., 2000).

The incidence of breast cancer increases with age and most breast cancer cases are observed in post-menopausal women (McCreedy, 2004). Another risk factor for developing breast cancer is starting menstruating early in life or having a late menopause. Women who have menopause after the age of 55 are twice as likely to develop breast cancer as compared women who experience menopause before the age of 45. Compared to women who have their first child before the age of 20, the ones who gave birth to their first child after the age of 30 almost double their risk for developing breast cancer. Another risk factor for breast cancer is family history and genetics. A women's risk for developing breast cancer is three or more times greater

if one of her first degree relatives (mother, sister, daughter) has bilateral breast cancer or breast and ovarian cancer and/or was diagnosed with breast cancer under the age of 40 (Mcpherson et al., 2000). In a similar vein, when considering genetic factors, two major susceptibility genes, BRCA1 and BRCA2, may account for up to 10 % of breast cancer cases in developed countries (Parkin et al., 2005). Dietary fat intake and the incidence of breast cancer are closely related but this correlation is not strong or consistent (Mcpherson et al., 2000). Radiation and exogenous hormones are other risk factors for developing breast cancer. It was shown that prolonged exposure to radiation increases the risk of developing breast cancer. Although using oral contraceptive pills are associated with only a small risk in developing breast cancer even for ten years following cessation, the risk of developing breast cancer is higher if women begin to use oral contraceptive pills before the age of 20 when compared to women who begin oral contraceptive pills at an older age. As oral contraceptive pills, hormone replacement therapy does also have a small risk in developing breast cancer for the first one to four years after ceasing it. There is no consistent or strong relationship between smoking/alcohol and the risk of developing breast cancer (Mcpherson, 2000).

It is important to be aware of risk factors for developing breast cancer. For comprehensive evaluation of breast cancer, it is also crucial to consider screening and treatment procedures for breast cancer. Screening breast cancer is important for early diagnosis of breast cancer and decreasing breast cancer related mortality rates depend on breast cancer. Screening procedures for breast cancer are breast awareness (education for women about normal and abnormal appearance of their breasts), clinical breast examination, self-examination, and mammography. Treatment

procedures include surgery, radiotherapy, chemotherapy, and hormone therapy (Mccready, 2004). As a result, while coping with breast cancer, risk factors in developing breast cancer, screening and treatment procedures for breast cancer need to be considered as a whole.

## **1.2 Psychological Effects of Breast Cancer on Patients.**

### **1.2.1 Psychological Distress in Breast Cancer Patients.**

The literature demonstrated that breast cancer patients are vulnerable to experience psychological problems. Numerous studies demonstrated that depression, anxiety (Burgess et al., 2005); adjustment disorders (Okamura et al., 2005); and sexual disturbances (Fallowfield & Hall, 1991) are common psychological problems after breast cancer diagnosis. Insomnia, loss of appetite, excessive alcohol consumption, suicidal thoughts (Jamison et al., 1978); fear of cancer recurrence, fear of death (Peters-Golden, 1982); diarrhea, fatigue, nausea-vomiting, low emotional functioning, negative body image, and poor future perspective (Okamura et al., 2005) are other problems experienced by breast cancer patients. In addition, women with breast cancer diagnosis may experience current and lifetime cancer-related PTSD (Alter et al., 1996); full and partial diagnosis of PTSD (Amir & Ramati, 2002); and/or some stringent criteria of PTSD (Green et al., 1998). According to the relevant literature, only a minority of breast cancer patients develop full PTSD. Therefore, Andrykowski and Cordova (1998) mentioned that many breast cancer patients might experience subthreshold PTSD or partial PTSD that does not meet a full diagnosis of PTSD. Beside, these symptoms are not as frequent or intense as full

PTSD symptoms. However, these symptoms can still seriously impair breast cancer patients' quality of life. In a similar vein, Green and colleagues (1998) emphasized that breast cancer produces considerable distress, but breast cancer patients' low rates of PTSD and breast cancer may not fit well to the Criterion A of stressor event. As a result, either partial or full, PTSD or posttraumatic stress-like symptoms may be seen in women diagnosed with breast cancer.

### **1.2.1.1 Posttraumatic Stress Disorder (PTSD) in Breast Cancer Patients**

#### **1.2.1.1.1 Clinical Description of PTSD**

For a diagnosis of PTSD according to the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV; American Psychological Association, 1994):

- A. Exposure to a traumatic event with both of the following present:
  - 1. The patient experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.
  - 2. The patient's response involved intense fear, helplessness, or horror. In children, this may be expressed by disorganized or agitated behavior.
- B. The traumatic event is persistently reexperienced in one or more of the following ways:

1. Recurrent and intrusive recollections of the event (e.g., images, thoughts or perceptions). Children may express themes or aspects of the trauma in repetitive play.
2. Recurrent nightmares of the event. Children may have frightening dreams without recognizable content.
3. A sense of reliving the trauma: illusions, flashbacks or hallucinations in adults, or trauma-specific reenactment in children.
4. Intense psychological distress or extreme physiological reaction to internal or external cues that symbolize or resemble an aspect of the traumatic event.

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three or more of the following:

1. Efforts to avoid thoughts, feelings, or conversations associated with the trauma;
2. Efforts to avoid activities, places or people that arouse recollections of the trauma;
3. Inability to recall an important aspect of the trauma;
4. Markedly diminished interest or participation in significant activities;
5. Feeling of detachment or estrangement from others;
6. Restricted range of affect (e.g., unable to have loving feelings);

7. Sense of a foreshortened future.

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two or more of the following:

1. Difficulty falling or staying asleep;
2. Irritability or outbursts of anger;
3. Difficulty concentrating;
4. Hypervigilance;
5. Exaggerated startle response.

E. Duration of symptoms in criteria B, C or D exceeds 1 month.

F. Disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if; Acute: if duration of symptoms is less than 3 months.

Chronic: if symptoms persist 3 months or more.

With delayed onset: if onset of symptoms is at least 6 months after the stressor.

The full diagnosis of PTSD must meet these criteria whereas partial PTSD includes some of these criteria. In addition, clinical description of PTSD involves the features of traumatic event. Accordingly, it is important to explain breast cancer as a traumatic event in the light of DSM-IV for PTSD.

### **1.2.1.1.2 Cancer as a Trauma**

In DSM-IV, the A-criterion for the traumatic event was divided into two parts which were the objective part –describing the traumatic event- and the subjective part -describing individual’s response to the traumatic event-. Therefore, a traumatic event has to involve actual or threatened death or serious injury, or a threat to the physical integrity of self or others. In addition, individual has to response to this traumatic event with a sense of intense fear, helplessness, and horror according to the definition of the A-criterion (Seidler & Wagner, 2006). Accordingly, Amir and Ramati (2002) mentioned that cancer is a chronic, life-threatening disease and cancer patients generally react to breast cancer diagnosis with feeling of intense fear, helplessness, and a sense of horror. Accordingly, Holland and Rowland (1989) indicated that breast cancer patients generally demonstrate a normal stress response characterized by shock, numbness, and denial and often including despair and hopelessness following breast cancer diagnosis (cited in Green et al., 1998; p. 1). Lastly, Rubin (2001) noted that women with breast cancer face severe traumas and the reality of having cancer in the body may lead to anxiety over the patient’s future and her continuing life. Considering literature mentioned above, it is seemed that two key points, ‘threat to life’ and ‘strong emotional reaction related with cancer stand out. As mentioned above, these two points are also two required conditions for an event to be classified as a potential PTSD-evoking traumatic event according to DSM-IV (1994). In the light of literature, it seems that there is a link between life-threatening illness -in this case cancer- and the development of PTSD or PTSD-

like symptoms. Therefore, it is important to clarify posttraumatic stress disorder (PTSD) considering breast cancer as a traumatic event.

There are several theories that try to explain posttraumatic stress and posttraumatic stress disorder. Among these theories, Horowitz's Social-Cognitive Model (1986) stands out in clarifying posttraumatic stress disorder in women with breast cancer.

#### **1.2.1.1.3 Horowitz's Social Cognitive Model of Posttraumatic Stress**

Horowitz's social-cognitive theory (1986) is based on the cognitive processing of trauma information, which includes thoughts, images, moods, ideas etc. Horowitz indicated that "completion tendency" is important in processing traumatic information. "Completion tendency" is defined as a psychological need in integrating the new information related to trauma into the existing cognitive world models or schemata (cited in Brewin et al., 1996; p. 673). According to Horowitz, when faced with trauma, people's initial response is outcry to trauma. After this response, individuals try to assimilate the new trauma information with prior cognitive world models or schemata. At this point, individuals are faced with "information overload" about trauma and prior schemata, and thus they are unable to match their thoughts, memories, and images of the trauma with their prior schemata. As a result, psychological defense mechanisms take part in avoiding memories of the trauma and keeping traumatic information unconscious, and this causes individual to experience a period of numbing and denial. However, completion tendency helps maintain traumatic information in active memory in order to reconcile new and old

information. Therefore, trauma memories and information actively break through defense mechanism and intrude into consciousness in the form of intrusions, flashbacks, unwanted thoughts and nightmares. Accordingly, two opposing processes which are completion tendency and defense mechanisms, actively work in the mind. On the one hand, defense mechanisms defend individual by avoiding and suppressing of the trauma which cause a period of numbing and denial, on the other, completion tendency promotes individual to integrate the trauma information into existing schemata and models. Thus, these processes cause individual to oscillate between denial-numbing and intrusions of trauma. This oscillation ends when individual gradually integrates the traumatic information into his or her longer term schematic representations about the self and future goals. Failure to process the trauma information causes the information to remain in active memory which in turn leads to chronic posttraumatic reactions (cited in Brewin & Holmes, 2003; p. 346).

According to Horowitz's social cognitive theory (1986), it is assumed that women with breast cancer diagnosis do also experience these processes while developing PTSD or PTSD-like symptoms. However, as mentioned before, women with breast cancer diagnosis experience positive psychological and life changes which are known as PTG, too.

### **1.2.2 Posttraumatic Growth (PTG)**

Posttraumatic growth is positive psychological change experienced as a result of the struggle with a highly challenging life crisis (Tedeschi & Calhoun, 2004). Posttraumatic growth is manifested in three basic domains, which are changes in

perception of self –strength and new possibilities-, changes in interpersonal relationship –relating to others-, and changes in philosophy of life –priorities, appreciation, and spirituality- (Stanton et al., 2006).

According to Stanton and colleagues (2006), experiencing a major life crisis - traumatic event- can cause individual to think that the world is more dangerous and unpredictable than he/she thinks. Therefore, due to this thought, individual's own vulnerability becomes more salient and clear. However, struggling with a major life changes does also lead an individual to consider himself/herself in a way that he/she has been tested and survived the worst event. Thus, this state suggests that the individual is indeed quite strong. Besides, some people who face with a major life crisis report developing new activities, new interests, the emergence of new possibilities in life, and sometimes embarking on significant new paths in life. A person, who struggles with traumatic life events, may also report a greater sense of intimacy, closeness, and freedom to be oneself, disclosing even socially unpleasant elements of oneself or one's experience. Thus, this situation may lead an individual to find out who are his/her real friends and then he/she feels more closeness to his/her friends who stay with him/her after a traumatic event. Furthermore, a change of priorities is experienced when a person begins to view previously trivial things (e.g. relationship with family) much more important than ever before. Greater appreciation of life is generally experienced when a person, who struggles with crisis, changes sense of the priorities of the central elements of life. Generally, people who are dealing with crisis, become to give more importance to intrinsically important priorities (e.g. spending time with one's children) and less importance to extrinsic priorities (e.g. making lots of money). Lastly, spiritual change is

experienced with a greater sense of purpose and meaning in life, greater satisfaction, and perhaps with clear answers given to the fundamental existential questions. (Stanton et al., 2006).

There are many models that try to explain PTG. Among these models, Schaefer and Moos' (1998) conceptual model of PTG is important in understanding PTG.

#### **1.2.2.1 Schaefer and Moos' Conceptual Model of PTG**

Schafer and Moos (1998) developed a conceptual model of PTG which is important in understanding PTG for breast cancer patients (Figure 1). In this model, it is assumed that environmental and personal system factors shape life crisis and their aftermath which in turn influence appraisal and coping responses. Accordingly, it seems that dynamic interplay of these factors contributes to the development of positive outcomes and personal growth –PTG- after a life crisis.

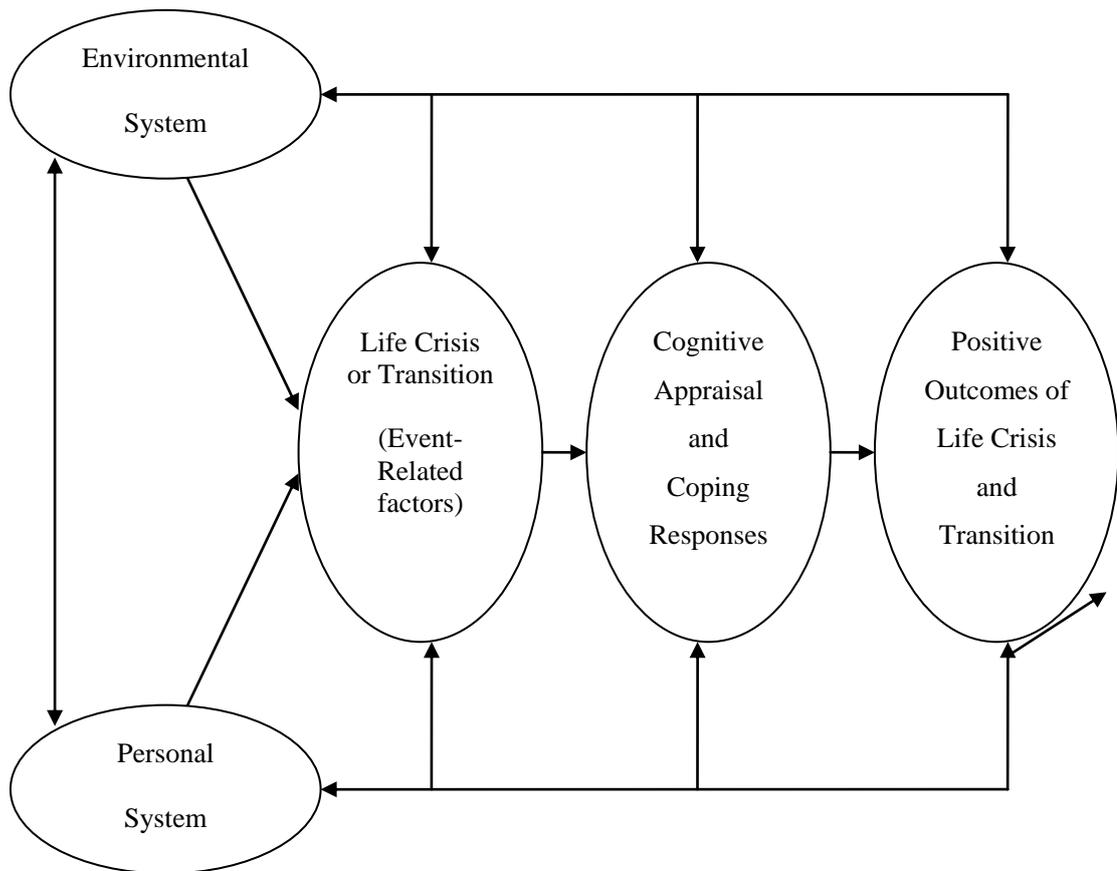


Figure 1. Schaefer and Moos' (1998) Conceptual Model of PTG.

According to the model of Schaefer and Moos (1998), the personal system is consisted of individual's sociodemographic characteristics and personal resources such as self-efficacy, resilience, motivation, health status, and past crisis experience. The environmental system encompasses individual's relationships with and social support from family members, friends, coworkers; and also the situation of their financial, home and community living conditions. Life crisis and transition (event-related factors) comprise the severity, duration, and timing of the crisis and also its scope (only an individual or a group of people). Coping responses, which people use to manage life crisis, are assessed according to two domains, approach and avoidance coping responses. Analyzing the crisis in a logical way, reappraising the crisis in a

more positive way, seeking support, and beginning to solve the problem comprise approach coping style. On the other hand, avoidance coping style is consisted of minimizing the problem, deciding that nothing can be done to change the problem itself, seeking alternative rewards, and venting emotions. In brief, the model of Schafer and Moos (1998) consisted of four basic components which are personal system, environmental system, life crisis and transition, coping responses and dynamic interplay of these components.

As a result of dynamic interplay of these components, three major types of positive outcomes, which are also main features of PTG, arise after a person experiences a life crisis. These outcomes are enhanced social resources -better relationships with family and friends, new support networks and confidant relationships-, enhanced personal resources -more cognitive differentiation, assertiveness, self-understanding, empathy, altruism, and maturity-, and the development of enhanced coping skills - ability to think through a problem logically, seeking help when needed and regulating affect-. Consequently, Schafer and Moos (1998) indicated that features of individual's environmental and personal resources, life crisis or transition, and types of cognitive appraisals and coping responses may determine whether or not an individual develops PTG.

As mentioned above, characteristics of the life crisis are important in developing PTG. Features of the life crisis are severity, predictability, duration, individuals' proximity to and amount of exposure to crisis, and extent of loss and scope -only an individual, family or whole community- (Schaefer & Moos, 1998). According to Schaefer and Moos (1998), intense personal crisis such as a life threatening illness -cancer-, may lead individuals to value life more and even

experiencing PTG more than large scale disasters and epidemics that effect entire family and communities. According to Cordova and colleagues (2007), enhancing appreciation of life and interpersonal relationships were most salient in women diagnosed with breast cancer. In other study of Cordova and colleagues (2001), breast cancer patients reported greater personal growth than healthy people in relating to others, appreciation of life, and in spirituality. Positive changes and/or PTG are not only observed in breast cancer patients but also in their spouses/partners, and children. In a study, patients and their partners reported positive psychological changes and PTG shortly after diagnosis. In addition, PTG increased for both the patient and the partner in one and a half year period after diagnosis (Manne et al., 2004). Lastly, Low and colleagues (2006) demonstrated that breast cancer patients experienced greater cancer -related PTG at 6 and 12 months if they had longer diagnosis duration, chemotherapy, or mastectomy.

Schaefer and Moos (1998) also indicated that environmental resources which include cognitive appraisals, coping styles, and different sources of social support are other important factors in developing PTG after a life crisis –traumatic event-.

#### **1.2.2.1.1 Stress, Cognitive Appraisal, Coping Styles, Dispositional Hope and Social Support in Understanding PTG for Breast Cancer Patients**

##### **1.2.2.1.2 Stress, Cognitive Appraisal, and Coping Styles**

Stress is defined as a universal human and animal phenomenon that causes intense and distressing experience and has many effects on behaviors (Lazarus,

1966). In addition, stress has great importance in human and animal adaptation. According to Lazarus (1966), stress is not a variable but it consists of many variables and processes. Therefore, stimulus definitions, response definitions, and relational definitions of stress must be considered. According to stimulus definition of stress, certain situations such as natural disasters, permanent disabilities, a chronic-life-threatening illness, and divorce are considered normatively stressful. This approach consists of taxonomy of stressful situations based on patterns of stress response, thus, it disregards individual differences in the evaluation of situations. Response definition refers to a state of stress which means a person reacting with stress, being under stress, being disrupted and so on. Accordingly, a person may react with stress to an environmental event but the other may not. Therefore, there is no systematic way of identifying what will be a stressor and what will not. As it can be seen, there is no objective way to define stress at the level of environmental conditions without considering characteristics and responses of the person. At this point, it is emphasized that the definition of stress comprises the relationship between characteristics of the person and the nature of the environmental events. Therefore, relational definition of stress refers to psychological stress which is defined as a relationship between the person and the environment that is appraised by the person as taxing or exceeding his/her resources and endangering his/her well-being. There are two processes that mediate the person-environment relationship; cognitive appraisal and coping (Lazarus & Folkman, 1984).

Cognitive appraisal is an evaluative process that determines why and to what extent a particular relationship between the person and the environment is stressful. In addition, this evaluative process categorizes an encounter and its various facets

with regard to its significance for well-being. Cognitive appraisal includes two main evaluative processes which are primary and secondary appraisal. People could appraise an event as irrelevant, benign-positive, or stressful during primary appraisal. When the relationship between the person and the environment carries no implication for a person's well being, the primary appraisal would be *irrelevant*. The primary appraisal would be *benign-positive* when the relationship between the person and the environment is understood as positive, preserves or enhances well being of the person, and/or promises to do so. Joy, love, happiness, exhilaration, peacefulness are some pleasurable emotions of benign-positive appraisal. *Stress appraisal* consists of harm/loss, threat, and challenge. Harm/loss appraisals occur when some damage, such as incapacitating injury or long-term illness, recognition of some damage to self- or social esteem, to the person has already been sustained. Threat appraisal is harm or losses that have not yet happened but are expected. However, even harm or loss has occurred, it includes threat concerns as well because every loss or harm carries negative implications for the future. Challenge, the third kind of stress appraisal, includes the mobilization of coping efforts and has much common with threat appraisal. However, there are main differences between threat and challenge appraisals. Challenge appraisals give attention to potential gain or growth in an event and they are described with pleasurable emotions such as excitement, eagerness, and exhilaration. On the other hand, threat appraisals focus on potential harm or loss in an event and they are described by negative emotions such as anger, anxiety, and fear. Despite of differences between challenge and threat appraisals, a situation could be appraised as both challenging and threatening. Challenge and threat appraisals can occur simultaneously and they are often thought as being related constructs, however

due to their cognitive components (gain/growth versus harm/loss) and their affective component (negative versus positive emotions), they must be evaluated separately. Additionally, appraisal of a situation can be shifted from challenging to threatening and also from challenging to threatening. This transition depends on cognitive coping and changes in the environment that may have negative or positive effects on the relationship between person and the environment (Lazarus & Folkman, 1984).

Secondary appraisal is latter phase of appraisal, in which an evaluation of what might and can be done in order to manage a threat or a challenge situation is made. Secondary appraisal is a complex evaluative process, which includes three basic processes in general. When facing with a threatening or challenging situation, secondary appraisal evaluates which coping options are available, whether a given coping option will succeed in dealing with the situation, and the probability that a person can apply a particular coping option or set of coping options efficiently (Lazarus & Folkman, 1984).

There is an interdependent relationship between primary and secondary appraisals. For example, if a person considers his/her coping resources adequate, the degree of threat that he/she feels decreases. On the other hand, the nonthreatening condition may become threatening if a person evaluates his/her coping resources inadequate in countering environmental demands or overcoming environmental or personal constraints (Folkman & Lazarus, 1985).

Lazarus and Folkman (1984) stated that coping is *constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person*. Coping is

generally conceptualized according to two essential distinctions. The first one is based on coping efforts in order to manage the stressor itself and/or reduce personal emotional stress caused by the stressor (problem- and/or emotion-focused coping styles, respectively) (Lazarus & Folkman, 1984). The second distinction is based on the general orientation of coping efforts (approach vs. avoidance coping) (Nes & Segerstrom, 2006).

According to the first distinction, there are two main coping styles which are emotion-focused coping style and problem-focused coping style (Lazarus & Folkman, 1984). EFC style is used in order to manage and regulate internal demands such as distressing emotions of a stressor. Seeking for emotional social support, positive reinterpretation, acceptance, denial, turning to religion (Carver et al., 1989), distancing, self-control, and escape-avoidance (Lazarus & Folkman, 1984); cognitive restructuring, denial, mental disengagement, wishful thinking, and social withdrawal (Nes & Segerstrom, 2006) are categorized under EFC styles. PFC style on the other hand is used in order to manage external demands and reduce the distress between an individual and individual's environment with behavioral efforts. PFC involves styles such as active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support (Carver et al., 1989); managing external aspects of a stressor, seeking social support, accepting responsibility, positive reappraisal, and planning in problem-solving (Lazarus & Folkman, 1984); task-oriented coping, confrontive coping, problem avoidance, and behavioral disengagement (Nes & Segerstrom, 2006). Among these coping strategies, Carver and colleagues (1989) mentioned that positive reinterpretation/growth, acceptance, and turning to religion –spirituality- may be related to both EFC and PFC styles but

they are categorized under approach-oriented coping. Accordingly, positive reinterpretation seems to have two functions. On one hand it reduces distressing emotions (EFC), and on the other hand using positive reinterpretation may lead to use problem-focused actions (PFC). Likely, acceptance of the reality of stressful situation PFC is necessary in order to take actions to redress the situation whereas EFC is also necessary when the situation cannot be changed easily. Lastly, an individual may use 'turning to religion coping' as a source of emotional coping (EFC) or s/he may use it as a way to positively reinterpret the situation or actively cope with it (Carver et al., 1989). In addition, seeking social support is seemed to be related both PFC and EFC. Carver and colleagues (1989) explained that an individual use may seeking social support due to two reasons. First, an individual can use it for instrumental reasons such as, for seeking advice, assistance, or information. This is called PFC. On the other hand, an individual can also use seeking social support for emotional reasons, which are getting moral support, sympathy, or understanding. This refers to EFC (Carver et al., 1989). Therefore, these two distinction and differences in positive reinterpretation, acceptance, and turning to religion must be considered while assessing results regarding PFC and EFC styles.

Lazarus and Folkman (1984) did hypothesize that particular cognitive appraisals may lead to specific type of coping style. Accordingly, if a situation is appraised as "challenging", these appraisals can be associated with problem-focused coping strategies whereas if the situation is appraised as "threatening" or "harmful", these appraisals can be associated with emotion-focused coping strategies (Lazarus & Folkman, 1984). According to Franks and Roesch (2006), cancer is a life threatening disease and individual's evaluation of cancer can be different from

others' evaluation. Therefore, some individuals may evaluate the illness –cancer- as a 'challenge' by considering cancer as learning experience, a test that they must overcome and a way that will make them stronger. Others, on the other hand, may appraise having cancer –a life threatening disease- as a 'threat' because of the possibility of death which leads to the termination of all goals. Besides, cancer may be appraised in terms of 'losses' by considering physical, economic or social limitations etc. associated with cancer illness (Franks & Roesch, 2006). In the study of Folkman and colleagues (1986), threat appraisals for high stakes conditions (self-esteem, loved one's well-being and one's physical health) were associated with confrontive coping, self-control coping, accepting more responsibility, escape-avoidance coping, less planful problem-solving, distancing and seeking social support. On the other hand, if the situation is appraised as changeable (thinking that something could be done), confrontive coping, accepting responsibility, planful problem-solving, and positive reappraisal coping styles are used (Folkman et al., 1986). Accordingly, it may be assumed that appraising a situation as changeable is also related with 'challenge' appraisal on one hand. Conversely, in a study of Franks and Roesch (2006), it was found that individuals who appraise their illness –cancer- as a threat, are more likely to use PFC. However, appraisals of harm and/or in case of cancer were associated with using minimizing the threat, wishful thinking, emotional discharge, and seeking rewards from other activities which were seen components of both avoidance coping and emotion-focused coping style (Franks & Roesch, 2006). Even though there are some inconsistent results, it can be assumed that threat appraisal is generally associated with emotion-focused coping style whereas

challenge appraisal is generally associated with problem-focused coping style in general.

As mentioned above, the second essential distinction is general orientation of coping efforts which are approach – acting on the demands of a stressor – and avoidance – avoiding or deflecting from the demands of a stressor –. Positive re-appraisal, self control, planning in problem-solving, seeking information (Roesch & Weiner, 2001); seeking instrumental support, task- oriented coping, active coping, confrontive coping, cognitive restructuring, seeking emotional support, turning to religion, and acceptance (Nes & Segerstrom, 2006) can be considered as types of approach coping; whereas distancing, escape-avoidance (Roesch & Weiner, 2001); problem avoidance, behavioral disengagement, denial, mental disengagement, wishful thinking, and social withdrawal (Nes & Segerstrom, 2006) can be viewed as types of avoidance coping. For example, a cancer patient can use approach coping in order to deal with his/her diagnosis by talking about its emotional consequences with friends and family, changing health behaviors to improve prognosis, and researching and collecting information about treatment options and illness. On the other hand, another cancer patient can use avoidance coping by trying not to think about the illness, distracting him- or herself from emotional reactions of illness or giving up health behaviors, which may lead to an improvement in prognosis (Nes & Segerstrom, 2006).

Briefly, two distinctions (problem-focused/emotion-focused coping vs. approach-avoidance coping) are independent from each other, however, each coping styles can take part under other coping styles too. Therefore, an individual can deal

with a problem by using approach coping (trying to solve the problem) or avoidance coping (disengaging from the problem), beside, an individual can cope with emotional consequences of the problem in order to use approach means (trying to change one's feelings about the problem) or avoidance means (distracting oneself from one's feelings about the problem) (Nes & Segerstrom, 2006). Problem-focused/emotion-focused coping styles and approach/avoidance coping styles have different effects on adjustment of women with breast cancer diagnosis. In fact, as mentioned above and according to the model of Schaefer and Moos (1998), the type of coping styles may lead to positive adjustment or even PTG (Low et al., 2006), or negative adjustment and/or PTSD (Amir & Ramati, 2002) for breast cancer patients. Cognitive avoidance, passive acceptance/resignation (avoidance coping), minimal use of approach coping (Hack & Degner, 2004); cognitive and behavioral escape-avoidance (Dunkel-Schetter et al., 1992) were associated with poor adjustment or more emotional distress whereas problem-solving (approach coping) (Hack & Degner, 2004); seeking or using social support, focusing on the positive, distancing (Dunkel-Schetter et al., 1992) were related to less emotional distress and/or better adjustment for women with breast cancer diagnosis. According to a meta-analytic review, seeking social support and spirituality were moderately related to posttraumatic growth, whereas acceptance was small predictive ability of posttraumatic growth. Also, coping responses, especially positive reappraisal and religious coping were more associated with PTG than optimism and social support (Prati & Pietrantonio, 2009). In addition, positive worldview, acceptance, positive reframing (Butler et al., 2005); positive reinterpretation, problem solving, and seeking alternative rewards (Widows et al., 2005) were associated with PTG whereas

cognitive avoidance predicted more PTSD symptoms (Tiet et al., 2006) in individuals who faced traumas. In another study, it was demonstrated that denial (Low et al., 2006) and suppression (Amir & Ramati, 2002) were related to more cancer-specific distress and even PTSD whereas emotional approach coping (including emotional processing, expression and seeking social support), positive reframing, religious coping and problem-focused coping style were associated with cancer-related PTG in women with diagnosis of breast cancer (Low et al., 2006). Lastly, according to Bussell and Naus (2010), disengagement, denial, self-blame, and venting which are categorized under EFC, were related to physical and psychological distress among women with breast cancer diagnosis during chemotherapy. Positive reframing, instrumental and emotional support related to more PTG as well as using religion, positive reframing and acceptance accounted for forty-six percent (46%) of the variance in PTG in two years follow-up among women with breast cancer diagnosis (Bussell & Naus, 2010).

According to the literature that mentioned above, it can be assumed that approach-oriented coping and approach-oriented problem-focused coping are related to positive adjustment and/or PTG. However, avoidance-oriented coping and avoidance-oriented emotion-focused coping are associated with poor adjustment and/or PTSD in general.

Beside cognitive appraisals and coping styles, there are some personal resources such as dispositional hope which has relationship with problem-focused coping style and emotion-focused coping style; and also a relationship with PTG and PTSD.

### **1.2.2.1.3 Dispositional Hope**

Dispositional Hope is an important personal resource and is associated with PTG and/or positive adjustment for women with breast cancer diagnosis. Ho and colleagues (2011) mentioned that hope was associated with PTG in oral cavity patients. In addition, dispositional hope thereby hopeful thinking may have important implications for cancer patients in every stage of cancer prevention, detection, and treatment (Irving et al., 1998). Therefore, it is essential to clarify the role of ‘dispositional hope’ for breast cancer patients.

Snyder and colleagues (1991) defined ‘hope’ as a positive motivational state that is formed by an interaction of a sense of successful agency (goal-directed energy) and pathways (planning to meet goals) (cited in Snyder, 2002; p. 250). In order to understand the definition of ‘hope’, it is better to clarify goals, agency and pathways.

According to Snyder (2002), human actions are based on goals. Beside, Pylyshyn (1973) indicated that goals provide an individual the targets of mental action sequences that can be visual images and /or have verbal definitions (cited in Snyder, 2002; p. 250). In hope theory of Snyder (2002), there are two types of desired goal, which are positive or ‘approach’ goal outcome and forestalling of negative goal outcome. A positive goal may be planned for the first time (e.g., a person wants to buy a first house); related to maintain of a present goal (e.g., wanting to keep one’s position in a job); or may demonstrate a wish to further a positive goal wherein one already has improved in something (e.g., wanting to support oneself as a tennis player after winning the first match). Forestalling of a negative goal outcome

includes stopping something before it happens (*e.g., not wanting to get laid off at work*) and deterrence in order to delay the undesirable (*e.g. seeking to delay being laid off work for 1 year*).

The other component of the hope theory is pathways thinking. Goals may be unanswered calls unless the individual generates usable routes to reach them. Therefore, pathways thinking generate planning parts in order to meet goals in the hope theory. Snyder (2002) explained that there is a difference between high-hope and low-hope individuals in pathways thinking. According to this, Woodbury (1999) mentioned that high-hope individuals pursue specific and decisive goals with the production of one plausible route and a sense of confidence in this way (cited in Snyder, 2002; p. 251); find alternative routes (Irving et al., 1998); tailor their routes effectively and reach their goals quickly (Snyder, 2002); whereas Snyder and colleagues (1998) indicated that low-hope individuals have tenuous goals, ambiguous routes (cited in Snyder, 2002; p. 251) and they could not produce alternative routes (Irving et al., 1998), and accommodate their routes and reach their goals slowly (Snyder, 2002).

Snyder and colleagues (1998) indicated that agency thinking is the motivational component of hope and is defined as *perceived capacity to use one's pathways to reach desired goals* in the hope theory. Agency thinking (self-referential thoughts) leads to a mental energy, which is needed to begin and continue using a pathway in all stages of the goal pursuit. Accordingly, it was found that high-hope people internalize self-talk agency phrases as, '*I can do this*' and '*I am not going to be stopped*' (cited in Snyder, 2002; p. 251).

Hopeful thinking needs both pathways and agency. There is always a relationship between pathways and agency thinking, however, they are distinct constructs. If there is no strategy (pathways) to be applied to goals, goal-directed motivation (agency) will be useless (Irving et al., 1998). On the other hand, if goal-directed motivation (agency) is not enough, active routing thoughts (pathways) will not be energized for goals (Snyder, 2002). For example, consider three women who have family histories of breast cancer. A first woman believes that there is no way or strategy in order to prevent or control breast cancer (i.e. no pathways thinking). Thus, her motivation cannot be implemented to pathways thinking. A second woman believes that there are some strategies such as breast-self examination and mammograms in order to prevent breast cancer and/or handle the treatment of breast cancer with help of her physician (i.e. high pathways thinking). Therefore, she can apply her motivation (i.e. agency thinking) to this goal-directed thought. Lastly, a third woman can have good pathways thinking for early detection of breast cancer, however, if she doesn't have motivation for these pathways, her pathways will be failed to be mobilized. According to the hope theory, it can be assumed that the second women can detect breast cancer and/or cope with it effectively during treatment more than the first and third women depending on pathways and agency thinking (Irving et al., 1998). Considering this description, Irving and colleagues (1998) suggested that high-hope individuals should use problem-solving strategies (pathways) with the motivation that is applied to these pathways. Accordingly, it can be assumed that there is a relationship between dispositional hope and coping styles.

Lazarus and Folkman (1984) mentioned that high-hope individuals' goal-directed orientations are similar to challenge style of appraisal. The theoretical

approach suggested that high-hope individuals appraise a situation generally in positive terms, thus, appraisal of a stressful situation may be challenging rather than threatening for high-hope individuals, which in turn leads to different kinds of coping strategies (Rubin, 2001). Accordingly, it was found that breast cancer patients who are low in hope see their breast cancer in terms of threat appraisal, use escape-avoidance (emotion-focused coping style) as well as harm appraisal for breast cancer, which are related to self-control, accepting responsibility, and escape-avoidance (emotion-focused coping styles). On the other hand, breast cancer patients who were low in hope could appraise their long-term follow up treatment as beneficial and use planful problem solving as their coping style (problem-focused coping style). For breast cancer patients who were high in hope, both threat and harm appraisals were associated with confrontive coping (problem-focused coping style); whereas both challenge and benefit appraisals were negatively correlated with escape-avoidance (emotion-focused coping style). This result demonstrated that appraisals and coping styles have different patterns in high-hope and low-hope breast cancer patients. Accordingly, high-hope breast cancer patients with positive appraisals do not use denial or wishful thinking in their responses to breast cancer treatment. On the other hand, high-hope breast cancer patients with negative appraisals are more likely to direct their efforts to confront their fears and overcome any adverse outcome from their check-up (Rubin, 2001). In addition, breast cancer patients who are high in hope, use seeking social support and accepting responsibility coping styles for their breast cancer treatment. In a longitudinal study, women with breast cancer diagnosis were assessed after the completion of primary and adjuvant treatments for early-stage breast cancer and 3 months later. It was found that hope

interacted with emotional expression (approach-oriented coping) in predicting psychological and physical adjustment to breast cancer. Accordingly, emotional expression and fewer appointments for cancer-related morbidities predicted decreased distress over time for high-hope women with breast cancer diagnosis (Stanton et al., 2000). Stanton and colleagues (2002) demonstrated that high spirituality (turning to religion) is more useful for breast cancer patients who were low in hope whereas low spirituality was more useful for breast cancer patients who were high in hope. In addition breast cancer patients who were high in hope had greater adaptational benefits when they used approach oriented coping in dealing with breast cancer. For breast cancer patients who were low in hope, spirituality was not associated with avoidance oriented coping, however, spirituality was correlated positively with avoidance oriented coping for breast cancer patients who were high in hope. Positive reinterpretation (for fear of cancer recurrence at 3 months) and seeking social support were more effective for breast cancer patients who were high in hope; and also positive reinterpretation was correlated negatively with avoidance oriented coping for women who were high in hope and positively correlated with avoidance oriented coping for breast cancer patients who were low in hope. Stanton and colleagues (2002) explained that positive reinterpretation is used as a reflection of positive outcome expectancies about treatment and recovery from breast cancer by high-hope breast cancer patients; and they believe that they contribute positively to recovery and benefit from the experience. On the other hand, low-hope breast cancer patients may use positive reappraisal prior to breast cancer surgery as a wishful thinking which is a more avoidant form of coping. Contrary to results, it was found that when high-hope breast cancer patients used lower problem-focused coping

(include the composition of active coping and planning), they reported a greater decrease in distress than when they reported high use of problem-focused coping (Stanton et al., 2002). Stanton and colleagues (2002) explained this unexpected finding by suggesting that high engagement in PFC prior to breast cancer surgery was counterproductive for high-hope breast cancer patients because some aspects of breast cancer experience might be beyond individual's control. Thus, patients demonstrated less problem-solving attempts (Stanton et al., 2002).

The literature demonstrated that dispositional hope is associated with different kinds of coping styles depending on the levels of hope, which in turn may lead to PTG and/or positive adjustment or PTSD and/or negative adjustment in breast cancer patients. This relationship does also suggest that problem-focused coping style has an effect on the relationship between dispositional hope and PTG; whereas emotion-focused coping style has an effect on the relationship between dispositional hope and PTSD. However, there are some contradictory findings especially for high-hope breast cancer patients in terms of appraisal of cancer and the use of specific coping styles.

#### **1.2.2.1.4 Social Support**

Social support took part as a key environmental resource in Schaefer and Moos' (1998) conceptual model in order to understand positive outcomes –PTG- of life crisis and transition. According to Schaefer and Moos (1998), social support provides an individual the use effective coping strategies and makes an individual to appraise and understand a life crisis in a more positive way. Cobb (1976), defined social support as information leading an individual to believe that he/she is cared for,

loved, esteemed, valued and belongs to a network of communication and mutual obligation. In addition, Cobb (1976) mentioned that social support moderates and/or 'buffers' the effects of major transitions and the unexpected crisis in life, thus, it facilitates coping with crisis and leads to adaptation to change. Cohen and Mckay (1984) proposed a model for buffering role of social support –interpersonal relationships- in the relationship between an individual and stressful events. Cohen and Mckay's (1984) model consisted of multidimensional view of social support and functional relationships of social support between the coping requirements of a stressful event and the resources provided by one's support system. It was hypothesized in Cohen and Mckay's (1984) model that, there are three types of social support, which are tangible, appraisal, and emotional support; and they have different moderating effects on reactions to a stressor. Tangible support may be most effective when anyone could provide someone in need money, care or other forms of assistance; and the provision of this aid must be viewed by the recipient as appropriate. As mentioned before, the other kind of social support is appraisal support. Appraisal social support may interfere with potential pathological effects of a stressor by appraising or reappraising of a potentially harmful stressor as benign. In order to understand this process, Lazarus's (1966) cognitive model of a stressor appraisal must be explained (cited in Cohen & Mckay, 1984; p. 256). According to Lazarus (1966), when a stimulus is assessed as threatening according to psychological structure of an individual and the cognitive features of the stimulus situation, and coping responses are not available, a stress reaction occurs. Therefore, the assessment of potential threat and the adequacy of one's perceived ability to cope with the threat may be determinants of whether one experiences stress (cited in

Cohen & Mckay, 1984; p. 256). Accordingly, Cohen and Mckay (1984) assumed that appraisal social support may interfere this relationship by altering one's assessment of threat or one's assessment of their ability to cope. Lastly, in Cohen and Mckay's (1984) model, emotional support is defined. Accordingly, if an individual thinks that the stressor reduces his/her feelings of belonging and/or being loved, these emotional losses may result in experiencing pathological effects of a stressor. Therefore, emotional social support is employed as a buffer between this stressor-induced loss (reduction in feelings of belonging, self-esteem and being loved, self-esteem) and an individual. As it can be seen, there is a difference between appraisal support and emotional support. Appraisal support mechanisms emphasize the evaluation of something external (i.e. the potential stressor), whereas emotional support mechanisms emphasize people's evaluations and feelings about themselves. Tangible, appraisal, and emotional (self-esteem and belonging) support will be effective if the type of support provided matches the coping requirements emerged in case of a particular stressor or stress experience. Therefore, interpersonal relationships that provide the appropriate forms of social support will be effective buffers whether these social supports fulfill coping requirements of a stressor or stress experience. Accordingly, any type of social support may intervene to stressful event in two ways. First, social support may intervene a stressful event and/or the expectation of that event and stress experience by lessening or preventing a stress response. Second, social support may intervene the relationship between the stress experience and the beginning of pathological outcome by alleviating or eliminating the stress experience.

Cohen and Mckay's (1984) suggested some conditions under which individual's social support would attenuate or prevent a stress response when faced with a stressful event depending on their model for buffering process (see Table 1).

Table 1. *The Possible Relationships between Stressors, Social Support Sources, and Social Support Mechanism*

Stressors	Social Support Mechanism	Sources of Social Support
Illness, aging, loss of income, loss of care, in need care etc.	Tangible	It could be any sources (family, friend, private person etc.) However, these sources must be viewed as appropriate by recipient.
Socially acceptable stressors involving psychological aspects and not involving feelings of shame and guilt.	Appraisal	<i>Similar Others</i> especially who have or are experiencing same or similar situation with the recipient.
Stressors that can cause failure or inadequacy thoughts about self or stressors which can result in seperation from an important one (e.g spouse, children)	Emotional	<i>Similar Others</i> especially who provide positive comparison with recipient and someone who provide close, relatively intimate relationships to recipient.

According to the literature that mentioned above, social support buffers the relationship between an individual and stressful event-stress experience. As

mentioned earlier, since breast cancer is a traumatic event, it can be assumed that social support operates as a buffer of the relationship between the women with breast cancer diagnosis and their illness experience. Therefore, social support may provide women with breast cancer diagnosis to appraise their illness –cancer- in a more positive way and to adjust their illness –cancer- more positively. Accordingly, it can also be considered that there may be an indirect relationship between social support and PTG in women with breast cancer diagnosis. According to the relevant literature, there is also a direct relationship between social support and PTG. To illustrate, it was found that social support is related to PTG, with higher levels of social support related to greater positive growth (Costar, 2005). According to Bozo and colleagues (2009), global perceived social support, social support perceived from family, friends, and a private person were significantly associated with the development of PTG among postoperative breast cancer patients. Holland and Holahan (2003) demonstrated that women with breast cancer diagnosis, higher in perceived social support, reported psychological well being as well as greater enactment of positive health behaviors. As it can be seen, social support may lead to PTG and/or positive adjustment among women with breast cancer diagnosis. Also, minimal perceived social support may lead to negative adjustment and high mortality rates among women with breast cancer diagnosis. According to Kornblith and colleagues (2001), breast cancer patients, who had both minimal social support and highly negative stressful events, are most vulnerable to serious psychological distress. Also, being separated, divorced, or widowed increased the likelihood of breast cancer patients becoming severely distressed (Kornblith et al., 2001). Lastly, lack of access to care, which was given specifically from friends, relatives, and adult children elevated the

risk of mortality for socially isolated women with breast cancer (Kroenke et al., 2006-supporttez6-), whereas social support may be associated with longer survival among women with breast cancer diagnosis (Maunsell et al., 1995).

As mentioned above, there is a strong relationship between social support and PTG among women with breast cancer diagnosis. However, there are not enough studies demonstrating the relationship between dispositional hope and social support. Barnum and colleagues (1998) demonstrated that higher hope is related to more perceived social support in adolescent burn survivors and their peers. Consequently, considering the ‘buffering’ role of social support, there may be a relationship between dispositional hope, social support, and PTG among women with breast cancer diagnosis.

### **1.3.1 Aims of the Study**

In the light of the literature mentioned above, the aim of this proposed study is to test three mediation and one moderation models in order to investigate the mediating role of coping styles and both mediating and moderating roles of perceived social support between dispositional hope-posttraumatic growth/PTSD relationships among postoperative breast cancer patients. Accordingly, it was hypothesized that;

1) Problem-focused coping styles would mediate the relationship between dispositional hope and posttraumatic growth among postoperative breast cancer patients.

A) Dispositional hope would predict problem-focused coping style among postoperative breast cancer patients.

B) Dispositional hope would predict posttraumatic growth among postoperative breast cancer patients.

C) Problem-focused coping style would predict posttraumatic growth among postoperative breast cancer patients.

D) When the effect of problem-focused coping style is controlled, previously significant relationship between dispositional hope and posttraumatic growth would be no longer significant.

2) Emotion-focused coping style would mediate the relationship between dispositional hope and posttraumatic stress disorder among postoperative breast cancer patients.

A) Dispositional hope would predict emotion-focused coping style among postoperative breast cancer patients.

B) Dispositional hope would predict posttraumatic stress disorder among postoperative breast cancer patients.

C) Emotion-focused coping style would predict posttraumatic stress disorder among postoperative breast cancer patients.

D) When the effect of emotion-focused coping style is controlled, previously significant relationship between dispositional hope and posttraumatic stress disorder would be no longer significant.

3) Perceived social support would mediate the relationship between dispositional hope and posttraumatic growth among postoperative breast cancer patients.

A) Dispositional hope would predict perceived social support among postoperative breast cancer patients.

B) Dispositional hope would predict posttraumatic growth among postoperative breast cancer patients.

C) Perceived social support would predict posttraumatic growth among postoperative breast cancer patients.

D) When the effect of perceived social support is controlled, previously significant relationship between dispositional hope and posttraumatic growth would be no longer significant.

4) Perceived social support would moderate the relationship between dispositional hope and posttraumatic growth among postoperative breast cancer patients.

A) The interaction between dispositional hope and perceived social support would predict PTG.

## CHAPTER II

### METHOD

#### 2.1 Participants

The current study was conducted with 73 breast cancer women (mean age = 44.44,  $SD = 7.43$ , minimum = 27, maximum = 62), who were undergoing postoperative chemotherapy and radiotherapy. Participants were from different cities but receiving treatment from Dr. Abdurrahman Yurtaslan Ankara Onkoloji Eğitim ve Araştırma Hastanesi. Education levels of participants were as follows: 53.4 % primary school graduates ( $n = 39$ ), 28.8 % high school graduates ( $n = 21$ ), 17.8 % university and graduate school graduates ( $n = 13$ ). Eighty-six point three percent of the participants were married ( $n = 63$ ) and the rest 13.7 % of the participants were single, divorced, or widowed ( $n = 10$ ). While 72.6 % of the participants reported their income level as middle and high ( $n = 53$ ), the remaining 27.4 % indicated their income level as low ( $n = 20$ ). Participants who live in a metropolitan constituted 50.75 % ( $n = 37$ ) of the sample. The rest of the participants were living in a city (35.6 %,  $n = 26$ ), town (8.2 %,  $n = 6$ ), or in a village (5.5 %,  $n = 4$ ). Approximately, 85 % of the participants were not working currently ( $n = 62$ ). However, 63 % of the participants defined themselves as a housewife ( $n = 46$ ), 19.2 % of them as retired ( $n = 14$ ), 4.1 % of them as government official ( $n = 3$ ) or worker ( $n = 3$ ), and 9.6 % of them worked in other jobs ( $n = 7$ ). Almost all of the participants (97.3 %,  $n = 71$ ) had at least one child. Of those participants, 50.7 % had two children ( $n = 37$ ), 20.5 %

had only one child ( $n = 15$ ), 19.2 % had three children ( $n = 14$ ), 4.1 % had four children ( $n = 3$ ), and only 2.7 % had five children ( $n = 2$ ). While most of the participants were not responsible for looking after someone (84.9 %,  $n = 62$ ), 12.3 % of the participants were liable to look after one person ( $n = 9$ ), and only 2.7 % of participants were liable to look after two people ( $n = 2$ ). The participants had a history of breast cancer for a minimum of one month and a maximum of 180 months ( $M = 17.11$ ,  $SD = 29.2$ ). Twenty-one participants were at Stage I (28.8 %), 21 were at the Stage II (28.8 %), 13 were at the stage III (17.8 %), 3 were at the Stage IV (4.1 %) of breast cancer; and 15 participants did not know the stage of their breast cancer (20.5 %). Seventy participants were receiving treatment (95.9 %); 58 of them were receiving chemotherapy treatment (79.5 %), 8 of them were receiving hormonal therapy (8.2 %), 5 of them receiving radiotherapy (6.8 %), and lastly 1 of them was receiving radiotherapy together with hormonal therapy (1.4 %). Regarding the controllability perception of breast cancer of the participants, 41 participants said “moderately controllable” (56.2 %), 9 said “completely controllable” (12.3 %), 5 said “not controllable at all” (6.8 %); and 4 participants said “moderately to highly controllable” (5.5 %). Demographic and illness related characteristics of the participants were represented in Table 2.

Table 2. *Demographic and Illness Related Charecteristics of the Participants*

	<i>N</i>	<i>%</i>	<i>Mean</i>	<i>SD</i>
Age			44.44	7.43
Education level				
Primary School Graduates	39	53.4		
High School Graduates	21	28.8		
University and Upper Graduates	13	17.8		
Marital Status				
Married	63	86.3		
Single, Divorced and Widow	10	13.7		
Perception of Income				
Low	20	27.4		
Middle and High	53	72.6		
Hometown				
Metropolitan	37	50.75		
City	26	35.6		
Town	6	8.2		
Village	4	5.5		
Work Status				
Working	62	85		
Housewife	46	63		
Retired	14	19.2		
Government Official	3	4.1		
Worker	3	4.1		
Other Jobs	7	9.6		
Number of Children				
Having children	71	97.3		
One Child	15	20.5		
Two Children	37	50.7		
Three Children	14	19.2		
Four Children	3	4.1		
Five Children	2	2.7		
Liability of Looking After Someone				
Noone	62	84.9		
Just One Person	9	12.3		
Two People	2	2.7		
History of Breast Cancer			17.11	29.2
Stage of Breast Cancer				
Not Know	15	20.5		
Stage I	21	28.8		
Stage II	21	28.8		
Stage III	13	17.8		
Stage IV	3	4.1		

Table 2 (Continued)

	<i>N</i>	%	Mean	<i>SD</i>
Receiving Treatment	70	95.9		
Chemotherapy	58	79.5		
Hormonal Therapy	8	8.2		
Radiotherapy	5	6.8		
Radiotherapy & Hormone Therapy	1	1.4		
Controllability Perception of Breast Cancer				
Moderately Controllable	41	56.2		
Completely Controllable	9	12.3		
Not Controllable at All	5	6.8		
Moderately to Highly Controllable	4	5.5		

## 2.2 Instruments

### 2.2.1 Demographic Information Form

Demographic Information Form was consisted of questions about sociodemographic characteristics of the participants and their illnesses. Questions were on the age, education level, marital status, perception of income level, hometown, profession, work status, number of children, liability of looking after someone, address and telephone number of the participants. The questions regarding the illness were about the time of discovery, the stage of illness at the time of diagnosis, type of the treatment (chemotherapy, radiotherapy, and hormonal therapy), and controllability perception of breast cancer. Controllability perception of breast cancer of the participants was assessed on a 5-point Likert type scale ranging from 'never' to 'completely'.

### **2.2.2 The Ways of Coping Inventory (WCI)**

The WCI was developed by Folkman and Lazarus (1980) and adapted to Turkish by Siva (1991). The WCI's Cronbach alpha coefficient was .90 (Siva, 1991). The Turkish version of the scale includes 74 items. In the Gençöz, Gençöz, and Bozo study (2006), hierarchical dimensions of coping styles were assessed and three factors, problem focused coping, emotion focused coping, and indirect coping, were identified. Cronbach alpha coefficients were found .90 for problem focused coping subscale, .88 for emotion focused coping subscale, and .84 for indirect coping subscale (Gençöz, Gençöz, & Bozo, 2006). The Cronbach alpha coefficients of the total WCI, PFC, and EFC for the present sample were .88, .84, and .84, respectively.

### **2.2.3 Multidimensional Scale of Perceived Social Support (MSPSS)**

The MSPSS was first developed by Zimet, Dahlem, Zimet, and Farley (1988). It is a 7-point Likert-type scale consisting of 12 items questioning the source and the level of social support provided by a significant other, family, and friends. Higher scores on this scale demonstrate higher levels of perceived social support. The reliability of the Turkish version was assessed by Cronbach's alpha and it was found to be between .80 and .95 (Eker, Akar, & Yıldız, 2001). The correlational analyses between the MSPSS, the Beck Depression Inventory (BDI), and the Spielberger State Trait Anxiety Scale demonstrated that the MSPSS is significantly and negatively correlated with BDI and Spielberger State Trait Anxiety Scale. Thus,

it was suggested that MSPSS is a valid scale (Eker & Arkar, 1995). Cronbach alpha coefficient of the MSPSS for the present sample was .89.

#### **2.2.4 The Hope Scale**

The Hope Scale, developed by Snyder and Harris (1991), is a 4-point Likert type scale consisting of 12 items. Turkish version of the Hope Scale was translated and adapted by Akman and Korkut (1993). It consists of two dimensions, which are agency and pathway. Snyder and Harris (1991) demonstrated that the internal consistency reliability coefficient of the scale as between .70 and .80, and the test-retest reliability with 10-week interval as .76. The internal consistency reliability coefficient of the Turkish version was .65 and the test-retest reliability coefficient with a 4-week interval was .66. The correlational analyses between the Hope Scale, the Beck Depression Inventory (BDI), and the Life Orientation Test (LOT) revealed that the Hope Scale is negatively correlated with BDI, and positively correlated with Life Orientation Test (LOT). Thus, it was suggested that the Hope Scale is a valid scale. Cronbach alpha coefficient of the Hope Scale for the present sample was .40.

#### **2.2.5 Posttraumatic Growth Inventory (PTGI)**

The PTGI was developed by Tedeschi and Calhoun (1996), translated into Turkish by Kılıç (2005), and then revised and adapted by Dirik and Karancı (2008). The PTGI, assessing positive changes perceived as a result of coping with trauma or illness, consisted of 21 items and had 5 subscales that are new possibilities, relating

to others, personal strength, spiritual change, and appreciation of life. Each item was rated on a 6-point scale ranging from 0 (*I did not experience this change as a result of my crisis*) to 5 (*I experienced this changed to a very great degree*). According to Dirik and Karancı (2008), factor analysis of PTGI demonstrated 3 factors, which were labeled as changes in ‘relationship with others’ (Cronbach’s Alpha = .86), ‘philosophy of life’ (Cronbach’s Alpha = .87), and ‘self-perception’ (Cronbach’s Alpha = .88) in Turkish sample. Tedeschi and Calhoun (1996) stated that the internal consistency coefficient of the scale was .90 and the test-retest reliability with 2-month interval was .71. Cronbach alpha coefficient of the PTGI for the present sample was .91 in phase 1. In phase 2, cronbach alpha coefficient of the PTGI for the present sample was .95.

### **2.2.6 Impact of Event Scale-Revised (IES-R)**

The IES-R was originally developed by Horowitz and colleagues (1979), revised by Weiss and Marmar (1997), and translated and adapted by Çorapçioğlu and colleagues (2006). The IES-R is a 4-point Likert type scale and it consists of 22 items. The IES-R had three subscales, which are intrusion, hyperarousal, and aviodance. The IES-R showed high internal consistency, with coefficient alphas ranging between .87 and .92 for intrusion, between .84 and .85 for avoidance, and between .79 and .90 for hyperarousal. Test–retest reliability coefficients ranged between .57 and .94 for intrusion, between .51 and .89 for avoidance, and between .59 and .92 for hyperarousal. The internal consistency coefficient of the Turkish version was .94 for all groups and .84-.94 for some specific groups. Cronbach alpha

coefficient of the IES-R for the present sample was .89 in phase 1. In phase 2, cronbach alpha coefficient of the IES-R for the present sample was .94.

### **2.3 Procedure**

Before the data collection, necessary ethical approvals were obtained from the ethics committees of Middle East Technical University, City Health Directorship, and Dr. Abdurrahman Yurtaslan Ankara Oncology Education and Research Hospital. The data was collected from 150 breast cancer patients being treated in Dr. Abdurrahman Yurtaslan Ankara Oncology Education and Research Hospital. The scales were applied orally to postoperative breast cancer patients because postoperative breast cancer patients could not use their hands after surgery easily. Application of measurements took approximately 45 minutes and measurements were given in a random order to postoperative breast cancer patients. Outcome measurements which were PTGI and IES-R were sent via post to same 150 postoperative breast cancer three months later. In addition, postoperative breast cancer patients were called by phone whether they took the posts or not. Seventy-three postoperative breast cancer patients sent measurements back via post. All data was collected approximately in 6 months. The analyses were conducted with the data obtained from the participants who answered and sent measurements back.

## CHAPTER III

### RESULTS

#### 3.1 Preliminary analysis with one-way ANOVAs

A series of one way ANOVAs were performed in order to assess the variation of variables (dispositional hope, PFC, EFC, perceived social support and its subscales which are friend, family and significant others social support, PTG in phase 1 and its subscales which are relationship with others, self-perception, philosophy of life in phase 1, PTSD in phase 1 and its subscales which are avoidance, intrusion and hyperarousal in phase 1, PTG and its subscales in phase 2 and PTSD and its subscales in phase 2) based on participant's level of education and participant's stage of breast cancer. The effect of education level on intrusion in phase 1 was found significant ( $F(2, 70) = 2.99, p < .05$ ). Post hoc analyses using LSD test revealed that primary school graduates had significantly higher intrusion scores in phase 1 ( $m = 11.85, sd = 7.02$ ) than university and graduate school graduates ( $m = 6.69, sd = 5.22$ ). Education level significantly effected hyperarousal in phase 1 ( $F(2, 70) = 3.93, p < .05$ ), as well. LSD test demonstrated that primary school ( $m = 9.92, sd = 6.15$ ) and high school graduates ( $m = 8.81, sd = 5.98$ ) reported significantly more hyperarousal in phase 1 than university and graduate school graduates ( $m = 4.69, sd = 4.38$ ). Emotion-focused coping style was also significantly affected by the level of education ( $F(2, 70) = 3.14, p < .05$ ). LSD test revealed that primary school graduates used significantly more emotion-focused coping style ( $m =$

42.61,  $sd = 13.42$ ) than high school graduates ( $m = 34.62$ ,  $sd = 10.31$ ). The effect of education level on hyperarousal in phase 2 was found significant as in phase 1 ( $F(2, 70) = 3.69$ ,  $p < .05$ ). Post hoc analyses using LSD test revealed that primary school graduates had significantly higher hyperarousal scores in phase 2 ( $m = 12.91$ ,  $sd = 6.96$ ) than university and graduate school graduates ( $m = 7.31$ ,  $sd = 5.95$ ). PTG in phase 2 was significantly affected by the level of education ( $F(2, 70) = 3.87$ ,  $p < .05$ ). According to LSD test, primary school graduates reported significantly more PTG in phase 2 ( $m = 69.18$ ,  $sd = 20.08$ ) than high school graduates ( $m = 55.76$ ,  $sd = 23.21$ ) and university and graduate school graduates ( $m = 53.84$ ,  $sd = 24.28$ ). Education level significantly affected self-perception in phase 2 ( $F(2, 70) = 5.42$ ,  $p < .01$ ). Post hoc analyses using LSD test revealed that primary school graduates ( $m = 33.92$ ,  $sd = 8.65$ ) demonstrated significantly more changes in self-perception in phase 2 than high school graduates ( $m = 26.96$ ,  $sd = 11.49$ ) and university and graduate school graduates ( $m = 24.85$ ,  $sd = 12.35$ ). The effect of education level on PTSD in phase 2 was found marginally significant ( $F(2, 70) = 3.07$ ,  $p = .053$ ). Accordingly, LSD test demonstrated that primary school graduates reported significantly more PTSD in phase 2 ( $m = 43.02$ ,  $sd = 20.03$ ) than university and graduate school graduates ( $m = 27.79$ ,  $sd = 20.4$ ). Lastly, the effect of education level on intrusion in phase 2 was found marginally significant ( $F(2, 70) = 3.01$ ,  $p = .056$ ), as well. However, LSD test revealed that primary school graduates had significantly higher intrusion scores in phase 2 ( $m = 16.06$ ,  $sd = 8.49$ ) than university and graduate school graduates ( $m = 9.95$ ,  $sd = 7.46$ ) (See Table 3).

Table 3. *Descriptive Statistics, one-way ANOVA, and LSD Tests for Study Variables and Education Level*

	<u>Primary School</u>		<u>High School</u>		<u>University and Graduate School</u>		<u>One-way ANOVA</u>	
	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>F</i> (2, 70)	<i>p</i>
Intrusion in Phase 1	11.85 <sub>a</sub>	7.02	11.48 <sub>a</sub>	6.35	6.69 <sub>b</sub>	5.22	2.99	.05
Intrusion in Phase 2	16.06 <sub>a</sub>	8.49	13.66 <sub>a</sub>	6.90	9.95 <sub>b</sub>	7.46	3.01	.056
Hyperarousal in Phase 1	9.92 <sub>a</sub>	6.15	8.81 <sub>ab</sub>	5.98	4.69 <sub>c</sub>	4.38	3.93	.05
Hyperarousal in Phase 2	12.91 <sub>a</sub>	6.96	11.21 <sub>a</sub>	5.69	7.31 <sub>b</sub>	5.95	3.69	.05
EFC	42.61 <sub>a</sub>	13.42	34.62 <sub>b</sub>	10.31	38.85 <sub>a</sub>	8.57	3.14	.05
PTG in Phase 2	69.18 <sub>a</sub>	20.08	55.76 <sub>b</sub>	23.21	53.84 <sub>bc</sub>	24.28	3.87	.05
Self-perception in Phase 2	33.92 <sub>a</sub>	8.65	26.96 <sub>b</sub>	11.49	24.85 <sub>bc</sub>	12.35	5.42	.01
PTSD in Phase 2	43.02 <sub>a</sub>	20.03	38.38 <sub>a</sub>	16.82	27.79 <sub>b</sub>	20.40	3.07	.053

*Note.* The mean scores that do not share the same subscript on the same row are significantly different from each other at .05 alpha level of LSD test.

The stage of breast cancer significantly affected relationship with others in phase 1 ( $F(4, 68) = 2.53, p < .05$ ). According to LSD test, participants who had Stage I breast cancer ( $m = 18.1, sd = 8.15$ ) and Stage IV breast cancer ( $m = 23, sd = 12.12$ ) had significantly more relationship with others in phase 1 than participants who had Stage III breast cancer ( $m = 11.45, sd = 7.47$ ). In addition, LSD test demonstrated that participants who had no idea about the stage of their breast cancer ( $m = 18.67, sd = 7.69$ ), had significantly higher scores on relationship with others than participants who had breast cancer in Stage III ( $m = 11.45, sd = 7.47$ ). The effect of the stage of breast cancer on PTSD in phase 2 was significant ( $F(4, 68) = 2.66, p < .05$ ). Post hoc analysis with LSD test revealed that participants who had no idea about the stage of their breast cancer ( $m = 49.67, sd = 10.65$ ), had significantly higher scores on PTSD in phase 2 than participants who had breast cancer in Stage III ( $m = 26.8, sd = 17.27$ ). Lastly, the stage of breast cancer had marginally significant effect on intrusion in phase 2 ( $F(4, 68) = 2.43, p = .056$ ). LSD test demonstrated that participants who had no idea about the stage of their breast cancer ( $m = 18.47, sd = 5.54$ ), reported more PTSD in phase 2 than participants who had breast cancer in Stage III ( $m = 9.95, sd = 6.57$ ) (See Table 4).

Table 4. *Descriptive Statistics, One-way ANOVA, and LSD Tests for Study Variables and Stage of Breast Cancer*

	<u>Stage I</u>		<u>StageII</u>		<u>Stage III</u>		<u>Stage IV</u>		<u>Not Know</u>		<u>One-way ANOVA</u>	
	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>F(4, 68)</i>	<i>p</i>
Relationship with Others in Phase 1	18.10 <sub>a</sub>	8.15	13.38 <sub>abcd</sub>	9.91	11.45 <sub>b</sub>	7.47	23.00 <sub>ac</sub>	12.12	18.67 <sub>acd</sub>	7.69	2.53	.05
PTSD in Phase 2	39.17 <sub>ab</sub>	24.02	39.71 <sub>ab</sub>	18.86	26.80 <sub>a</sub>	17.27	31.67 <sub>ab</sub>	16.17	49.67 <sub>b</sub>	10.65	2.66	.05
Intrusion in Phase 2	13.77 <sub>ab</sub>	9.72	15.14 <sub>ab</sub>	7.67	9.95 <sub>a</sub>	6.57	9.67 <sub>ab</sub>	8.02	18.47 <sub>b</sub>	5.54	2.43	.056

*Note.* The mean scores that do not share the same subscript on the same row are significantly different from each other at .05 alpha level of LSD test.

### 3.2 Preliminary analysis with *t*-tests

Group comparisons on dispositional hope, problem-focused coping style, emotion-focused coping style, perceived social support and its subscales which are friend, family and significant other social support, PTG in phase 1 and its subscales which are relationship with others, self-perception, philosophy of life in phase 1, PTSD in phase 1 and its subscales which are avoidance, intrusion and hyperarousal in phase 1, PTG and its subscales in phase 2, and PTSD and its subscales in phase 2 were performed by using independent samples *t*-test. Marital status, the level of income, working status, having a children or not, and receiving a treatment or not were used as independent variables that may have an effect on the study variables.

There was a significant difference between married and single/divorced/widowed group in terms of avoidance ( $t(71) = -2.70, p < .01$ ) and PTG in phase 1 ( $t(71) = -2.19, p < .05$ ). In addition, there was a marginally significant difference between married and single/divorced/widowed group in terms of relationship with others ( $t(71) = -1.96, p = .055$ ) and self-perception in phase 1 ( $t(71) = -1.99, p = .051$ ). Breast cancer patients who were married, reported more avoidance in phase 1 ( $m = 11.46, sd = 6.29$ ) than breast cancer patients who were single, divorced or widowed ( $m = 5.8, sd = 5.12$ ). In addition, for PTG in phase 1, married breast cancer patients ( $m = 53.27, sd = 21.86$ ) were significantly higher than single, divorced or widowed breast cancer patients ( $m = 36.68, sd = 24.90$ ). In terms of relationship with others in phase 1 scores, married breast cancer patients ( $m = 16.68, sd = 8.85$ ) were -marginally- significantly higher than single, divorced or widowed breast cancer patients ( $m = 10.8, sd = 8.75$ ). Similarly, breast cancer

patients who were married, got -marginally- significantly higher scores on self-perception phase 1 ( $m = 26.91$ ,  $sd = 10.12$ ) than breast cancer patients who were single, divorced or widowed ( $m = 19.88$ ,  $sd = 12.02$ ) (See Table 5).

Table 5. Descriptive Statistics and T-Test Results of Participants for Marital Status

	<u>Married</u>		<u>Single/Divorced/Widow</u>		<u>T-Test</u>	
	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>t</i> (71)	<i>p</i>
Avoidance in Phase 1	11.46	6.29	5.8	5.12	- 2.70	.01
PTG in Phase 1	53.27	21.86	36.68	24.90	- 2.19	.05
Relationship with Others in Phase 1	16.68	8.85	10.8	8.75	- 1.96	.055
Self-perception in Phase 1	26.91	10.12	19.88	12.02	- 1.99	.051

Considering the effects of income level, it was found that there was a marginally significant difference between the participants who reported their income as low and the participants who indicated their income as middle or high, in terms of PTG in phase 1 ( $t(71) = 1.95$ ,  $p = .055$ ), PTSD in phase 2 ( $t(71) = 1.93$ ,  $p = .058$ ), and self-perception in phase 2 ( $t(71) = 1.99$ ,  $p = .051$ ). In addition, there was a significant difference between the participants who reported their income as low and the participants who indicated their income as middle or high, in terms of hyperarousal in phase 2 ( $t(71) = 2.34$ ,  $p < .05$ ). The participants who reported their income as low, got -marginally- significantly higher scores on PTG in phase 1 ( $m = 59.34$ ,  $sd = 21.80$ ) than the participants who indicated their income as middle or high ( $m = 47.85$ ,  $sd = 22.63$ ). Similarly, the participants who reported their income as low, got significantly higher scores on PTSD in phase 2 ( $m = 46.1$ ,  $sd = 16.28$ ) than participants who

indicated their income as middle or high ( $m = 36.28$ ,  $sd = 20.44$ ). Also, the participants who reported their income as low, got significantly higher scores on self perception in phase 2 ( $m = 34.32$ ,  $sd = 7.08$ ) than the participants who indicated their income as middle or high ( $m = 28.78$ ,  $sd = 11.64$ ). Lastly, the participants who indicated their income as low, reported significantly more hyperarousal in phase 2 ( $m = 14.32$ ,  $sd = 6.06$ ) than the participants who indicated their income as middle or high ( $m = 10.33$ ,  $sd = 6.64$ ) (See Table 6).

Table 6. *Descriptive Statistics and T-Test Results of Participants from Different Income Levels in terms of Study Variables*

	<u>Low</u>		<u>Middle and High</u>		<u>T-Test</u>	
	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>t</i> (71)	<i>p</i>
Hyperarousal in Phase 2	14.32	6.06	10.33	6.64	2.34	.05
Self-perception in Phase 2	34.32	7.08	28.78	11.64	1.99	.051
PTG in Phase 1	59.34	21.8	47.85	22.63	1.95	.055
PTSD in Phase 2	46.1	16.28	36.28	20.44	1.93	.058

When the effects of having children was examined, results showed that there was a significant difference between the participants who had children and the participants who did not have children in terms of PTSD in phase 1 ( $t(71) = 2.38$ ,  $p < .05$ ) and 2 ( $t(71) = 2.04$ ,  $p < .05$ ), intrusion in phase 1 ( $t(71) = 2.14$ ,  $p < .05$ ) and 2 ( $t(71) = 2.43$ ,  $p < .05$ ), philosophy of life in phase 1 ( $t(71) = 2.21$ ,  $p < .05$ ) and 2 ( $t(71) = 2.79$ ,  $p < .01$ ), PTG in phase 2 ( $t(71) = 2.87$ ,  $p < .01$ ), and self-perception in phase 2 ( $t(71) = 3.62$ ,  $p = .001$ ). In addition, there was a marginally significant difference between participants who had children and participants who did not have

children in terms of avoidance in phase 1 ( $t(71) = 1.98, p = .052$ ). Participants who had children reported significantly higher PTSD in phase 1 ( $m = 30.92, sd = 15.87$ ) than participants who did not have children ( $m = 4, sd = 2.83$ ). Similarly, participants who had children reported significantly higher PTSD in phase 2 ( $m = 39.75, sd = 19.48$ ) than participants who did not have children ( $m = 11.5, sd = 7.78$ ). The intrusion scores in phase 1 of participants who had children ( $m = 11.10, sd = 6.63$ ) were significantly higher than the intrusion scores in phase 1 of participants who did not have children ( $m = 1, sd = 1.41$ ). In a similar vein, the intrusion scores in phase 2 of participants who had children ( $m = 14.66, sd = 7.9$ ) were significantly higher than the intrusion scores in phase 2 of participants who did not have children ( $m = 1, sd = 1.41$ ). Participants who had children, got significantly higher scores on philosophy of life in phase 1 ( $m = 9.44, sd = 6.01$ ) than participants who did not have children ( $m = .0, sd = .0$ ). Also, participants who had children, got significantly higher scores on philosophy of life in phase 2 ( $m = 12.92, sd = 5.75$ ) than participants who did not have children ( $m = 1.5, sd = 2.12$ ). Participants who had children, reported significantly higher PTG in phase 2 ( $m = 63.81, sd = 21.69$ ) than participants who did not have children ( $m = 19.47, sd = 9.23$ ). In terms of self-perception scores in phase 2, participants who had children ( $m = 31, sd = 10.06$ ) were significantly higher than participants who did not have children ( $m = 5, sd = 7.07$ ). Lastly, participants who had children got significant higher scores on avoidance in phase 1 ( $m = 10.93, sd = 6.33$ ) than participants who did not have children ( $m = 2, sd = 2.83$ ) (See Table 7).

Table 7. *Descriptive Statistics and T-Test Results of Participants for Having Children or Not in terms of Study Variables*

	<u>Yes</u>		<u>No</u>		<u>T-Test</u>	
	<i>m</i>	<i>sd</i>	<i>m</i>	<i>sd</i>	<i>t</i> (71)	<i>p</i>
PTSD in Phase 1	30.92	15.87	4	2.83	2.38	.05
PTSD in Phase 2	39.75	19.48	11.5	7.78	2.04	.05
Intrusion in Phase 1	11.10	6.63	1	1.41	2.14	.05
Intrusion in Phase 2	14.66	7.9	1	1.41	2.43	.05
Avoidance in Phase 1	10.93	6.33	2	2.83	1.98	.052
Philosophy of Life in Phase 1	9.44	6.01	0	0	2.21	.05
Philosophy of Life in Phase 2	12.92	5.75	1.5	2.12	2.79	.01
PTG in Phase 2	63.81	21.69	19.47	9.23	2.87	.01
Self-perception in Phase 2	31	10.06	5	7.07	3.62	.001

The differences between working and not working participants were significant on hope ( $t(71) = 2.07, p < .05$ ). Working participants got significantly higher scores on hope ( $m = 28.64, sd = 2.50$ ) than not working participants ( $m = 26.08, sd = 3.94$ ).

### 3.3 Preliminary analysis with Pearson correlations

Zero order Pearson correlation coefficients were examined to assess the relationships among variables (See Table 8). Controllability perception of breast cancer did not correlate with any variables, and age was significantly correlated only with avoidance in phase 1 ( $r = -.24, p < .05$ ). Dispositional hope had significant correlations with PTSD in phase 1 ( $r = -.28, p < .05$ ), intrusion in phase 1 ( $r = -.28,$

$p < .05$ ), and hyperarousal in phase 1 ( $r = -.30, p < .01$ ). PFC was correlated significantly with PTSD in phase 1 ( $r = -.36, p < .01$ ), intrusion in phase 1 ( $r = -.38, p < .01$ ), hyperarousal in phase 1 ( $r = -.36, p < .01$ ), and dispositional hope ( $r = .66, p < .01$ ). EFC was found to have significant correlations with PTSD in phase 1 ( $r = -.26, p < .05$ ), hyperarousal in phase 1 ( $r = .24, p < .05$ ), PTG in phase 1 ( $r = .28, p < .05$ ), 'relationship with others' in phase 1 ( $r = .33, p < .01$ ), and PFC ( $r = .39, p < .01$ ). Perceived social support had significant correlation with perceived social support from family ( $r = .82, p < .01$ ), friend ( $r = .82, p < .01$ ), and significant other ( $r = .85, p < .01$ ). Besides, perceived social support from friend was correlated significantly with perceived social support from family ( $r = .42, p < .01$ ) and significant other ( $r = .55, p < .01$ ). In addition, perceived social support from significant other was found to have significant correlation with 'relationship with others' in phase 1 ( $r = .26, p < .05$ ) and perceived social support from family ( $r = .66, p < .01$ ). PTSD in phase 1 had significant correlations with variables except for perceived social support and its subscales. Intrusion in phase 1 was significantly correlated with variables except for 'relationship with others' in Phase 1, EFC, perceived social support and its subscales. Avoidance in phase 1 was found to have significant correlations with each other except for dispositional hope, EFC, perceived social support and its subscales. Hyperarousal in phase 1 had significant correlations with variables except for 'relationship with others' in phase 1, perceived social support and its subscales. PTG in phase 1 was significantly correlated with variables except for dispositional hope, PFC, perceived social support and its subscales. 'Relationship with others' in phase 1 was correlated significantly with variables except for dispositional hope, PFC, perceived social support, perceived

social support from family and friend. 'Philosophy of life' in phase 1 was found to have significant correlations with each other except for dispositional hope, PFC, EFC, perceived social support and its subscales. 'Self-perception' in Phase 1 was correlated significantly with variables except for dispositional hope, PFC, EFC, perceived social support and its subscales. PTSD in phase 2 was correlated significantly with variables except for dispositional hope, EFC, perceived social support, perceived social support from family and significant other. Intrusion in phase 2 had significant correlations with variables except for 'relationship with others' in phase 1 'philosophy of life' in phase 1, perceived social support and its subscales. Avoidance in phase 2 was found to have significant correlation with variables except for dispositional hope, EFC, perceived social support, perceived social support from family and significant other. Hyperarousal in phase 2 was correlated significantly with variables except for EFC, perceived social support, perceived social support from family and significant other. PTG in phase 2 and 'relationship with others' in phase 2 had significant correlations with variables except for EFC, perceived social support and its subscales. 'Philosophy of life' in phase 2 was found to have significant correlation with variables except for dispositional hope, EFC, perceived social support and its subscales. Lastly, 'self-perception' in phase 2 was correlated significantly with variables except for EFC, perceived social support and its subscales (see Table 8).

Table 8. *Correlations Coefficients among Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
1. Age	1																										
2. Controllability Perception of Cancer	.09	1																									
3. PTSD in Phase 1	-.20	.06	1																								
4. Intrusion in Phase 1	-.11	.01	.90**	1																							
5. Avoidance in Phase 1	-.24	.24	.74	.44	1																						
6. Hyperarousal in Phase 1	-.18	-.08	.89**	.84**	.44**	1																					
7. PTG in Phase 1	-.10	.16	.45**	.31**	.52**	.31**	1																				
8. Relationship with Others in Phase 1	-.08	.15	.34**	.18	.46**	.21	.86**	1																			
9. Philosophy of life in phase 1	-.13	.05	.45**	.36**	.43**	.36**	.88**	.65**	1																		
10. Self-perception in Phase 1	-.08	.18	.42**	.31**	.46**	.30*	.92**	.63**	.77**	1																	
11. Dispositional Hope	.20	.06	-.28*	-.28*	-.13	-.30*	-.07	-.09	-.06	-.04	1																
12. PFC	.00	-.04	-.34*	-.38*	-.16	-.36**	-.05	-.04	-.10	-.02	.66**	1															
13. EFC	-.08	.11	.26*	.21	.22	.24*	.28*	.33**	.18	.23	.18	.39**	1														
14. Perceived Social Support (PSS)	.13	.24	-.08	-.07	-.00	-.15	.07	.18	.02	-.01	.02	.13	.06	1													
15. PSS from Family	.07	.06	-.07	-.05	-.06	-.07	.02	.10	.02	-.04	-.06	.04	.03	.82**	1												
16. PSS from Friend	.20	.32*	-.12	-.13	.01	-.20	-.01	.11	-.06	-.08	.12	.15	-.00	.82**	.42**	1											
17. PSS from Significant Other	.01	.16	.01	.05	.05	-.08	.20	.26*	.12	.14	-.04	.13	.17	.85**	.66**	.55**	1										
18. PTSD in Phase 2	-.15	.20	.68**	.61**	.46**	.66**	.32**	.27*	.27*	.30**	-.30**	-.46**	.11	-.18	-.11	-.24*	-.04	1									
19. Intrusion in Phase 2	-.05	.25	.63**	.59**	.38**	.62**	.25*	.21	.18	.25*	-.34**	-.49**	.07	-.11	-.06	-.19	.00	.94**	1								
20. Avoidance in Phase 2	-.27*	.10	.61**	.51**	.50**	.54**	.35**	.27*	.32**	.33*	-.14	-.25*	.22	-.23	-.14	-.28*	-.12	.81**	.60**	1							
21. Hyperarousal in Phase 2	-.08	.18	.58**	.53**	.35**	.60**	.27*	.26*	.22	.23*	-.32**	-.48**	.01	-.13	-.11	-.18	-.01	.93**	.91**	.59**	1						

Table 8 (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
22. PTG in Phase 2	-.06	.24	.51**	.40**	.44**	.44**	.46**	.33**	.41**	.47**	-.28*	-.45**	-.08	-.06	-.01	-.12	.02	.63**	.55**	.56**	.56**	1					
23. Relationship with Others in Phase 2	-.05	.22	.44**	.34**	.39**	.40**	.41**	.43**	.32**	.33**	-.28*	-.47**	-.09	-.03	-.04	-.04	.03	.59**	.54**	.46**	.59**	.90**	1				
24. Philosophy of life in phase 2	.00	.25	.43**	.31**	.42**	.35	.40**	.27*	.44**	.38**	-.17	-.35**	-.08	-.01	.02	.06	.03	.53**	.46**	.51**	.46**	.90**	.77**	1			
25. Self-perception in Phase 2	-.09	.21	.50**	.41**	.41**	.44**	.44**	.23*	.37**	.53*	-.29*	-.40**	-.05	-.09	-.00	-.19	-.01	.58**	.51**	.55**	.50**	.94**	.73**	.77**	1		

Note. \*  $p < .05$ , \*\*  $p < .01$ .

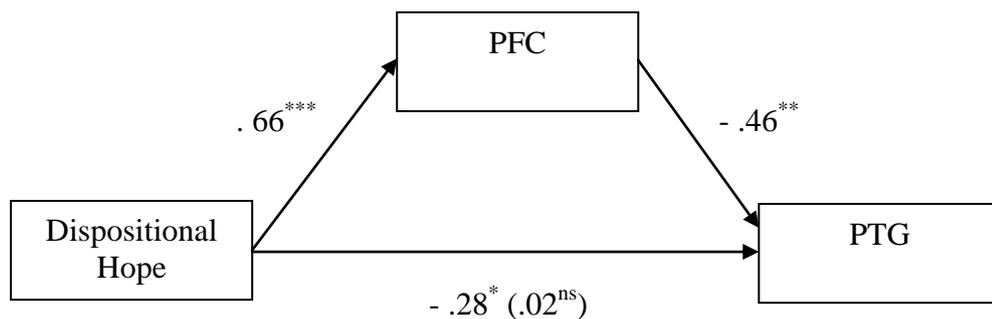
### **3.4 Mediation Models**

Mediation models were conducted in order to test the main hypotheses. In these mediation models, PFC, EFC, perceived social support and its subscales (family, friend, significant others social support) were used as mediators, dispositional hope was used as the independent variable and PTSD and its subscales (avoidance, intrusion and hyperarousal) in phase 2, PTG and its subscales (relationship with others, self-perception, philosophy of life) in phase 2, were used as the dependent variables. Firstly, three mediation models were conducted in order to test the mediator roles of PFC, EFC and perceived social support on the relationship between dispositional hope and PTSD and PTG in phase 2. Nine mediation models were examined in order to test the mediator roles of PFC, EFC and perceived social support on the relationships between dispositional hope and subscales of PTSD and PTG in phase 2. In addition, three mediation models were assessed to test mediator roles of subscales of perceived social support on the relationship between dispositional hope and PTG in phase 2. Lastly, the mediator roles of subscales of social support on the relationships between dispositional hope and subscales of PTG were tested in nine mediation models.

#### **3.4.1 Problem Focused Coping as a Mediator**

Four mediation models were tested in order to assess the mediator role of PFC on the relationships between dispositional hope and PTG and its subscales.

The first mediation model was conducted in order to test the mediator role of PFC on the relationship between dispositional hope and PTG. Dispositional hope predicted PTG ( $\beta = -.28, p < .05$ ) and PFC ( $\beta = .66, p < .001$ ) significantly as well as PFC predicted PTG significantly ( $\beta = -.46, p < .01$ ). The standardized regression coefficient between dispositional hope and PTG was no longer significant when controlling for PFC (from  $\beta = -.28, p < .05$  to  $\beta = .02, p = .88$ ). However, the mediator role of PFC between dispositional hope and PTG was not confirmed by Sobel test (Sobel  $z = -1.42, p = 0.15$ ). Therefore, PFC did not mediate the relationship between dispositional hope and PTG (See Figure 2).

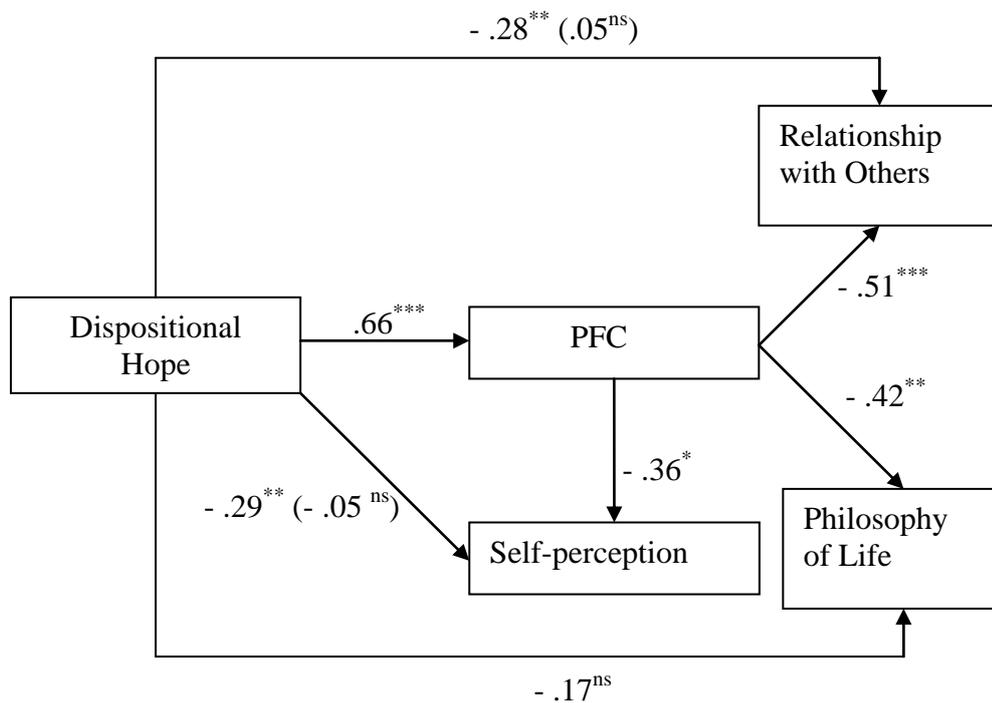


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 2. PFC as a Mediator on the Relationships between Dispositional Hope and PTG.

The second mediation model was proposed to test the mediator role of PFC on the relationship between dispositional hope and ‘relationship with others’, the first dimension of PTG. Results showed that the conditions of mediation were met. Dispositional hope was a significant predictor of ‘relationship with others’ ( $\beta = -.28, p < .05$ ) and PFC ( $\beta = .66, p < .001$ ), and PFC was a significant predictor of

‘relationship with others’ ( $\beta = - .51, p = .001$ ). Moreover, the standardized regression coefficient between dispositional hope and ‘relationship with others’ was no longer significant when controlling for PFC (from  $\beta = -.28, p < .05$  to  $\beta = .05, p = .70$ ). However, the mediator role of PFC on the relationship between dispositional hope and ‘relationship with others’ was not confirmed by Sobel test (Sobel  $z = - 1.93, p = .054$ ). Thus, PFC did not mediate the relationship between dispositional hope and ‘relationship with others’. The third mediation model was conducted in order to test the mediator role of PFC on the relationship between dispositional hope and ‘self-perception’, the second dimension of PTG. The conditions of mediation were met for the model: Dispositional hope was a significant predictor of ‘self-perception of self’ ( $\beta = - .29, p < .05$ ) and PFC ( $\beta = .66, p < .001$ ), and PFC was a significant predictor of ‘self-perception of self’ ( $\beta = - .36, p < .05$ ). The standardized regression coefficient between dispositional hope and ‘self-perception of self’ was no longer significant when controlling for PFC, too (from  $\beta = - .29, p < .05$  to  $\beta = - .05, p = .72$ ). However, the mediator role of PFC on the relationship between dispositional hope and ‘self-perception’ was not confirmed by Sobel test (Sobel  $z = - 1.71, p = 0.09$ ). Thus, PFC did not mediate the relationship between dispositional hope and ‘self-perception’. Lastly, PFC did not mediate the relationship between dispositional hope and ‘philosophy of life’, the third dimension of PTG, because the conditions of mediation were not met. Dispositional hope predicted PFC significantly ( $\beta = .66, p < .001$ ). However, dispositional hope was not a significant predictor of ‘philosophy of life’ ( $\beta = - .17, p = .15$ ) (See Figure 3)

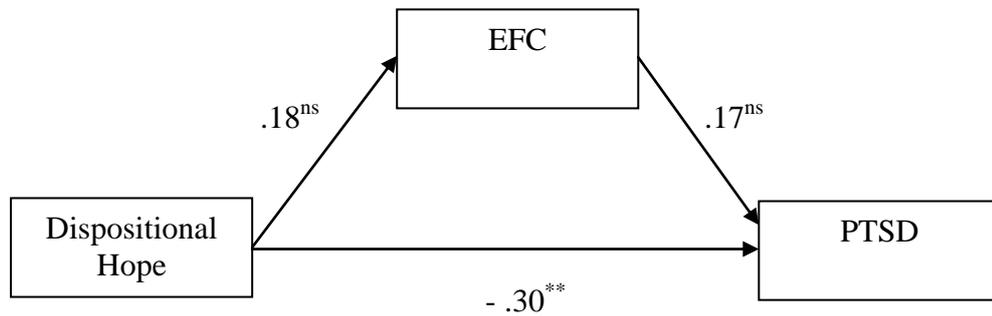


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 3. PFC as a Mediator on the Relationships between Dispositional Hope and PTG and Its Subscales.

### 3.4.2 Emotion-Focused Coping as a Mediator

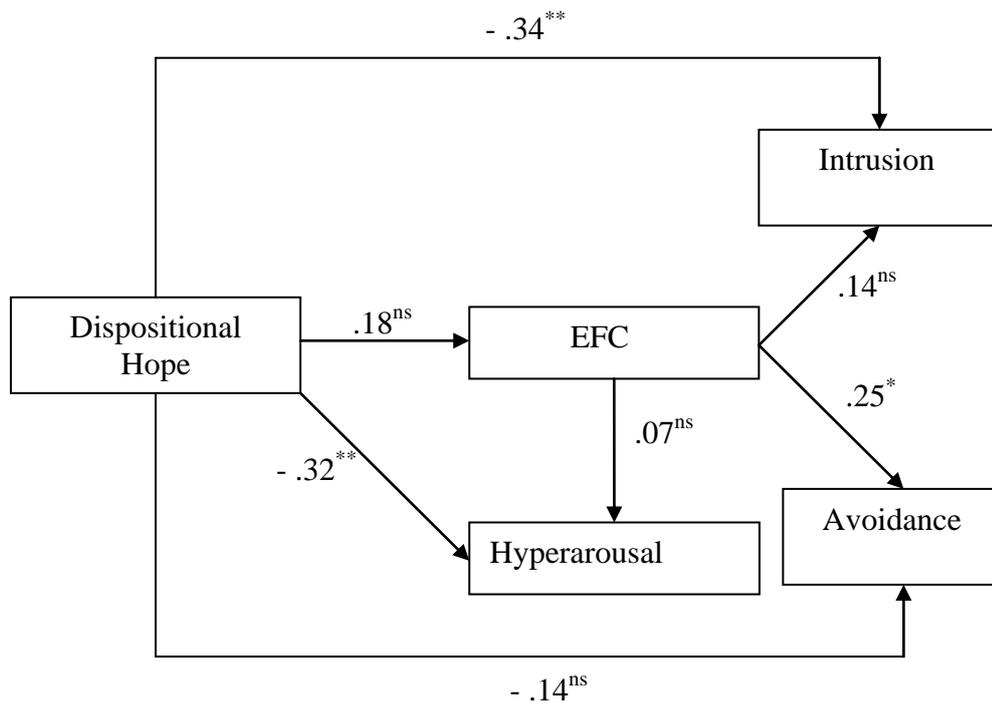
Four mediation models were tested in order to assess the mediator role of EFC on the relationships between dispositional hope and PTSD and its subscales. EFC did not mediate the relationship between dispositional hope and PTSD because the conditions of mediation were not met. Dispositional hope was a significant predictor of PTSD ( $\beta = -.30, p < .01$ ), however it was not a significant predictor of EFC ( $\beta = .18, p = .12$ ). Moreover, EFC was not a significant predictor of PTSD ( $\beta = .17, p = .13$ ) (See Figure 4).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 4. EFC as a Mediator on the Relationships between Dispositional Hope and PTSD.

Similarly, the relationships between dispositional hope and the subscales of PTSD were not mediated by EFC. In the first mediation model, dispositional hope was a significant predictor of ‘intrusion’ ( $\beta = -.34, p < .01$ ) but not EFC ( $\beta = .18, p = .12$ ). Moreover, EFC was not a significant predictor of ‘intrusion’ ( $\beta = .14, p = .22$ ). In the second model, dispositional hope predicted ‘hyperarousal’ ( $\beta = -.32, p < .01$ ) significantly, but not EFC ( $\beta = .18, p = .12$ ), as well. In addition, EFC did not predict ‘hyperarousal’ ( $\beta = .07, p = .55$ ). Lastly, in the third mediation model, dispositional hope predicted neither ‘avoidance’ ( $\beta = -.14, p = .23$ ) nor EFC ( $\beta = .18, p = .12$ ). However, EFC was a significant predictor of ‘avoidance’ ( $\beta = .25, p < .05$ ) (See Figure 5).



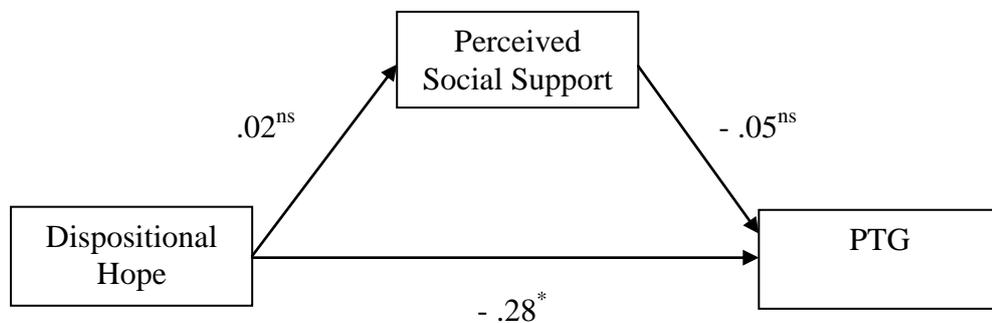
Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 5. EFC as a Mediator on the Relationships between Dispositional Hope and PTSD and Its Subscales.

### 3.4.3 Perceived Social Support as a Mediator

Twelve mediation models were tested in order to examine the mediator roles of perceived social support and its subscales on the relationships between dispositional hope and PTG and its subscales. Firstly, perceived social support was tested as a mediator on the relationship between dispositional hope and PTG and its subscales. Then, subscales of perceived social support were assessed as a mediator on the relationship between dispositional hope and PTG and its subscales.

The relationship between dispositional hope and PTG was not mediated by perceived social support because the conditions of mediation were not met. Dispositional hope predicted PTG ( $\beta = -.28, p < .05$ ) significantly, however, dispositional hope was not a significant predictor of perceived social support ( $\beta = .02, p = .88$ ), and perceived social support did not significantly predict PTG ( $\beta = .05, p = .65$ ). Therefore, perceived social support did not mediate the relationship between dispositional hope and PTG (See Figure 6).

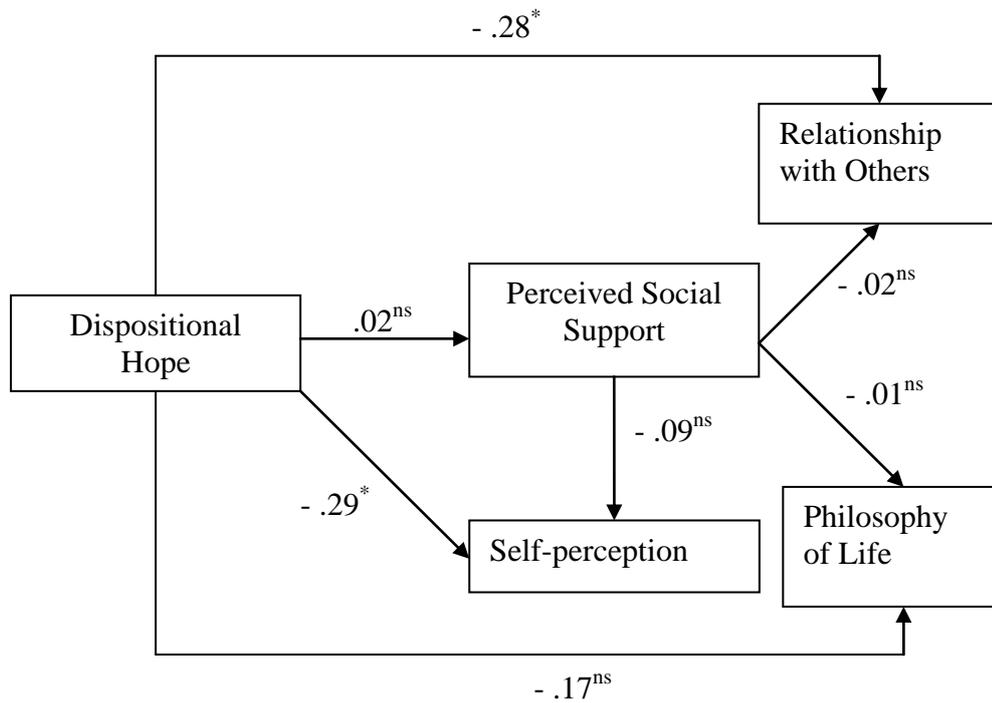


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 6. Perceived Social Support as a Mediator on the Relationships between Dispositional Hope and PTG.

For the models that used the subscales of PTG as the dependent variable, results showed that perceived social support did not mediate the relationships between dispositional hope and the dimensions of PTG. For the first model, dispositional hope was a significant predictor of ‘relationship with others’ ( $\beta = -.28, p < .05$ ). However, dispositional hope did not predict perceived social support ( $\beta = .02, p = .88$ ) significantly, and perceived social support did not significantly

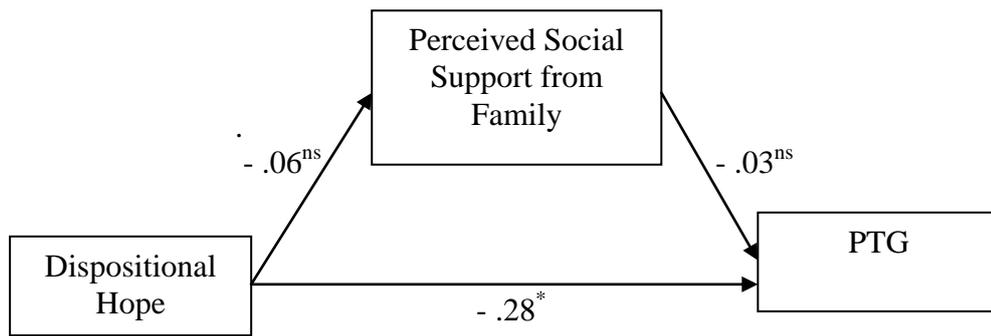
predict 'relationship with others' ( $\beta = -.02, p > .05$ ). Thus, the relationship between dispositional hope and 'relationship with others' was not mediated by perceived social support. Perceived social support did not mediate the relationship between dispositional hope and 'self-perception', as well. Although, dispositional hope was a significant predictor of 'self-perception' ( $\beta = -.29, p < .05$ ), it was not a significant predictor of perceived social support ( $\beta = .02, p = .88$ ), and perceived social support did not significantly predict 'self-perception' ( $\beta = -.09, p > .05$ ). Lastly, dispositional hope predicted neither perceived social support ( $\beta = .02, p = .88$ ) nor 'philosophy of life' ( $\beta = -.17, p = .15$ ). Moreover, perceived social support did not significantly predict 'philosophy of life' ( $\beta = -.02, p > .05$ ). Therefore, the relationship between dispositional hope and 'philosophy of life' was not mediated by perceived social support (See Figure 7).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 7. Perceived Social Support as a Mediator on the Relationships between Dispositional Hope and PTG and Its Subscales.

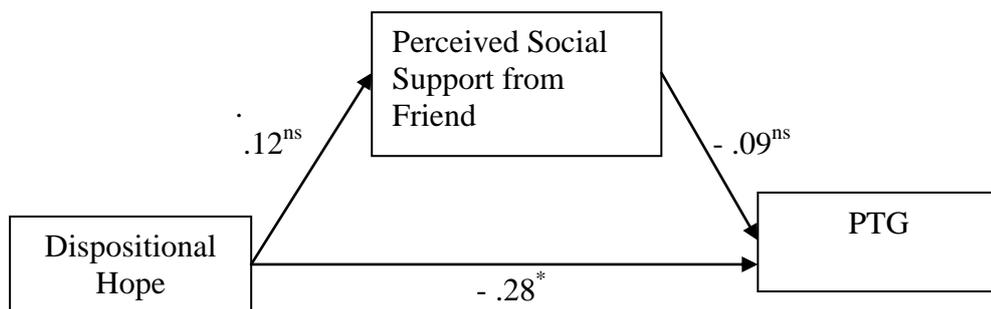
Perceived social support from family, friend, and significant other did not mediate the relationship between dispositional hope and PTG because conditions of mediation were not met. Accordingly, dispositional hope predicted PTG ( $\beta = -.28$ ,  $p < .05$ ) significantly but not perceived social support from family ( $\beta = -.06$ ,  $p = .61$ ), and perceived social support from family did not significantly predict PTG ( $\beta = -.03$ ,  $p = .80$ ). Therefore, the relationship between dispositional hope and PTG was not mediated by perceived social support from family (See Figure 8).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 8. Perceived Social Support from Family as a Mediator on the Relationships between Dispositional Hope and PTG.

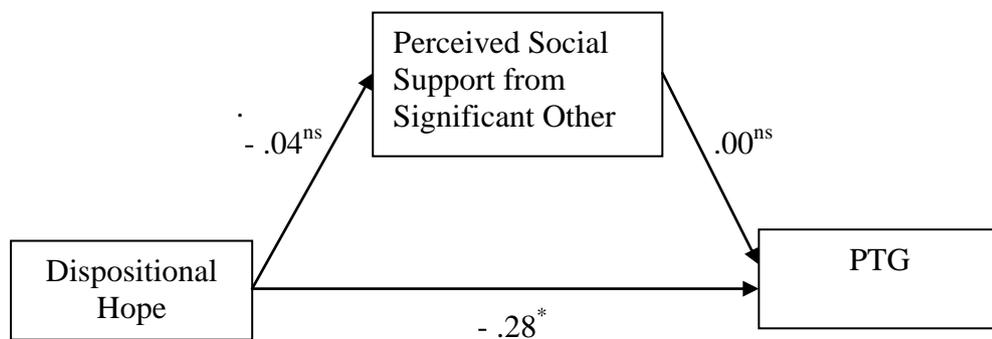
Perceived social support from friend did not mediate the relationship between dispositional hope and PTG, as well. Although, dispositional hope predicted PTG ( $\beta = -.28, p < .05$ ) significantly, it was not a significant predictor of perceived social support from friend ( $\beta = .12, p = .30$ ), and perceived social support from friend did not significantly predict PTG ( $\beta = -.09, p > .05$ ) (See Figure 9).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 9. Perceived Social Support from Friend as a Mediator on the Relationships between Dispositional Hope and PTG.

Similarly, the relationship between dispositional hope and PTG was not mediated by perceived social support from significant other. Dispositional hope predicted PTG ( $\beta = -.28, p < .05$ ) significantly. However, it was not a significant predictor of perceived social support from significant other ( $\beta = -.04, p = .70$ ), and perceived social support from significant other did not significantly predict PTG ( $\beta = .003, p = .98$ ) (See Figure 10).

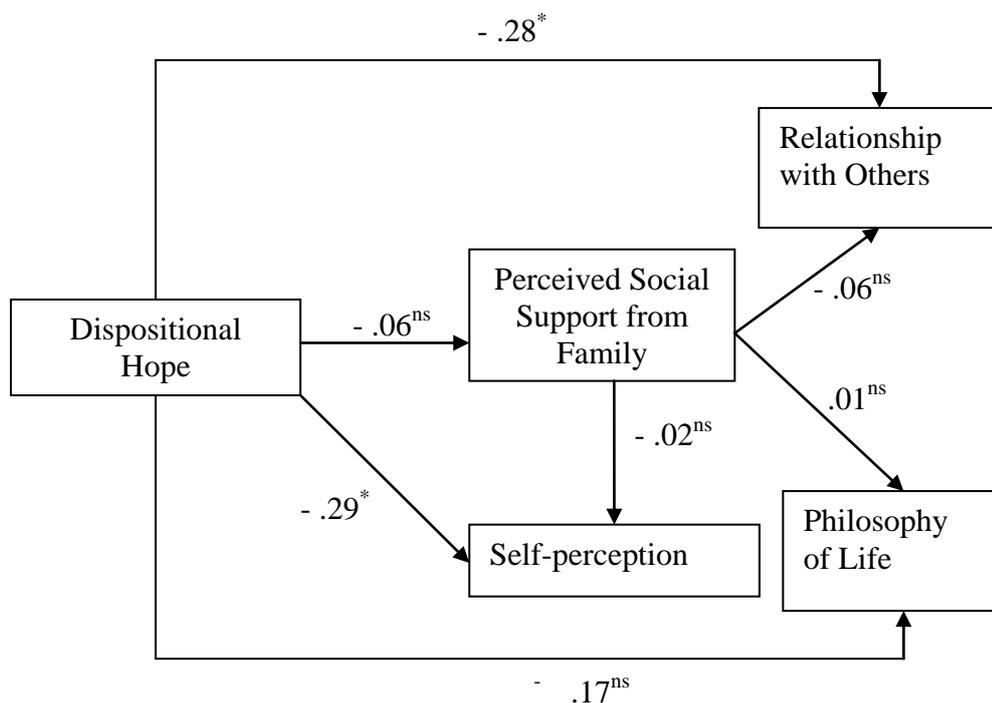


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 10. Perceived Social Support from Significant Other as a Mediator on the Relationships between Dispositional Hope and PTG.

Perceived social support from family did not mediate the relationship between dispositional hope and ‘relationship with others’ because conditions of mediation were not met. That is, dispositional hope was a significant predictor of ‘relationship with others’ ( $\beta = -.28, p < .05$ ), on the other hand, it did not predict perceived social support from family ( $\beta = -.06, p = .61$ ) significantly, and perceived social support from family did not significantly predict ‘relationship with others’ ( $\beta = -.06, p > .05$ ). The relationship between dispositional hope and ‘self-perception’ was not mediated by perceived social support from family, as well. Although,

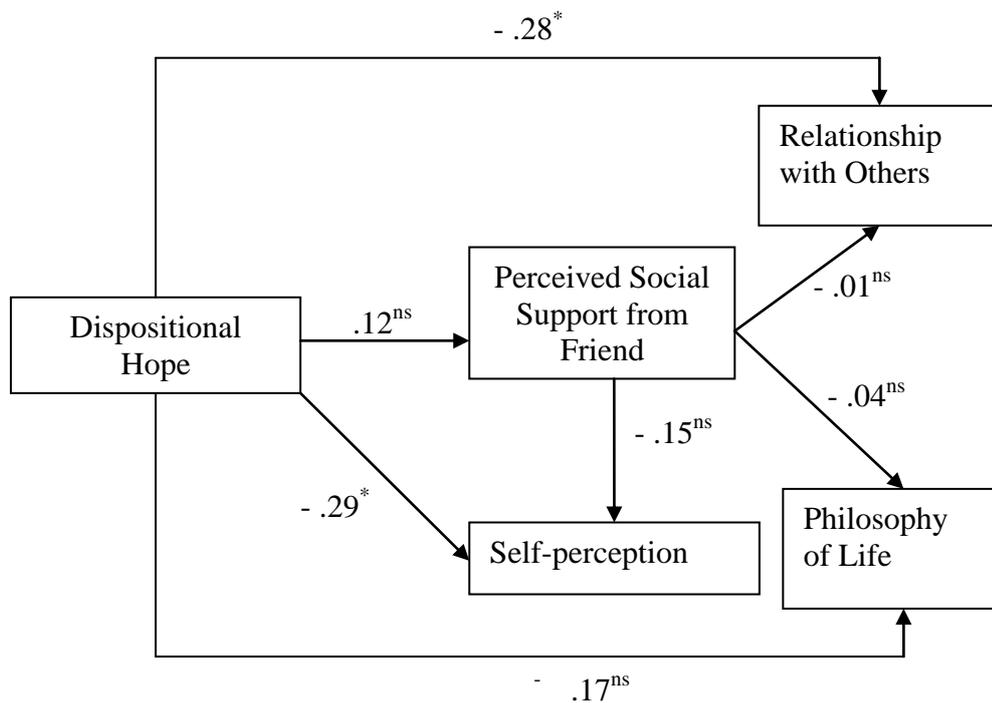
dispositional hope predicted 'self-perception' ( $\beta = -.29, p < .05$ ) significantly, it was not a significant predictor of perceived social support from family ( $\beta = -.06, p = .61$ ), and perceived social support from family did not significantly predict 'self-perception' ( $\beta = -.02, p > .05$ ). Lastly, dispositional hope predicted neither perceived social support from family ( $\beta = -.06, p = .61$ ) nor 'philosophy of life' ( $\beta = -.17, p = .15$ ). Moreover, and perceived social support family did not significantly predict 'philosophy of life' ( $\beta = .01, p > .05$ ). Therefore, perceived social support from family did not mediate the relationship between dispositional hope and 'philosophy of life' (See Figure 11).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 11. Perceived Social Support from Family as a Mediator on the Relationships between Dispositional Hope and subscales of PTG.

The relationship between dispositional hope and ‘relationship with others’ was not mediated by perceived social support from friend because conditions of mediation were not. That is, dispositional hope predicted ‘relationship with others’ ( $\beta = -.28, p < .05$ ) significantly, on the other hand, it was not a significant predictor of perceived social support from friend ( $\beta = .12, p = .30$ ), perceived social support from friend did not significantly predict ‘relationship with others’ ( $\beta = -.01, p > .05$ ). Similarly, perceived social support from friend did not mediate the relationship between dispositional hope and ‘self-perception’. Dispositional hope predicted ‘self-perception’ ( $\beta = -.29, p < .05$ ) significantly. However, dispositional hope was not a significant predictor of perceived social support from friend ( $\beta = .12, p = .30$ ), perceived social support from friend did not significantly predict ‘self-perception’ ( $\beta = -.15, p > .05$ ). Lastly, dispositional hope predicted neither ‘philosophy of life’ ( $\beta = -.17, p = .15$ ) nor perceived social support from friend ( $\beta = .12, p = .30$ ). Moreover, perceived social support from friend did not significantly predict ‘philosophy of life’ ( $\beta = -.04, p > .05$ ). Thus, perceived social support from friend did not mediate the relationship between dispositional hope and ‘philosophy of life’ (See Figure 12).

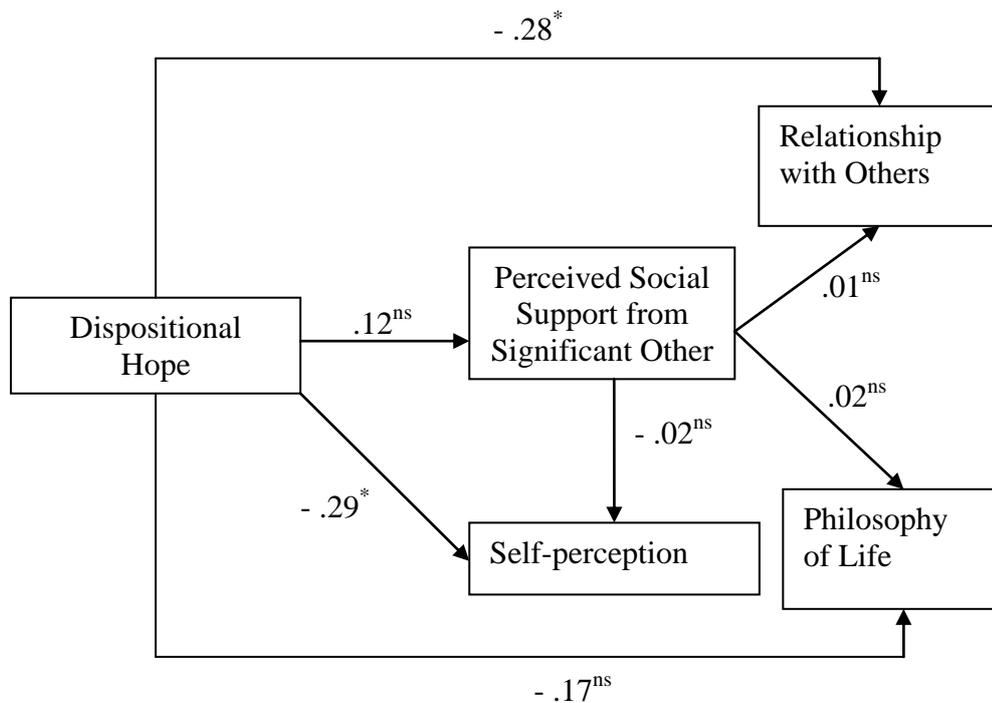


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 12. Perceived Social Support from Friend as a Mediator on the Relationships between Dispositional Hope and subscales of PTG.

Perceived social support from significant other did not mediate the relationship between dispositional hope and ‘relationship with others’. Dispositional hope was a significant predictor of ‘relationship with others’ ( $\beta = -.28, p < .05$ ), on the other hand, it did not predict perceived social support from significant other significantly ( $\beta = -.04, p = .70$ ), perceived social support from significant other did not significantly predict ‘relationship with others’ ( $\beta = .01, p > .05$ ). Significant other’s social support did not mediate the relationship between dispositional hope and ‘self-perception’, as well. Dispositional hope was a significant predictor of ‘self-perception’ ( $\beta = -.29, p < .05$ ). However, dispositional hope did not predict perceived social support from significant other ( $\beta = -.04, p = .70$ ), perceived social

support from significant other did not significantly predict 'self-perception' ( $\beta = -.02, p > .05$ ). Lastly, dispositional hope predicted neither 'philosophy of life' ( $\beta = .17, p = .15$ ) nor perceived social support from significant other ( $\beta = -.04, p = .70$ ). Moreover, perceived social support from significant other did not significantly predict 'philosophy of life' ( $\beta = .02, p > .05$ ). Thus, the relationship between dispositional hope and 'philosophy of life' was not mediated by perceived social support from significant other (See Figure 13).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 13. Perceived Social Support from Significant Other as a Mediator on the Relationships between Dispositional Hope and subscales of PTG.

Table 9. *Summary of Mediation Models*

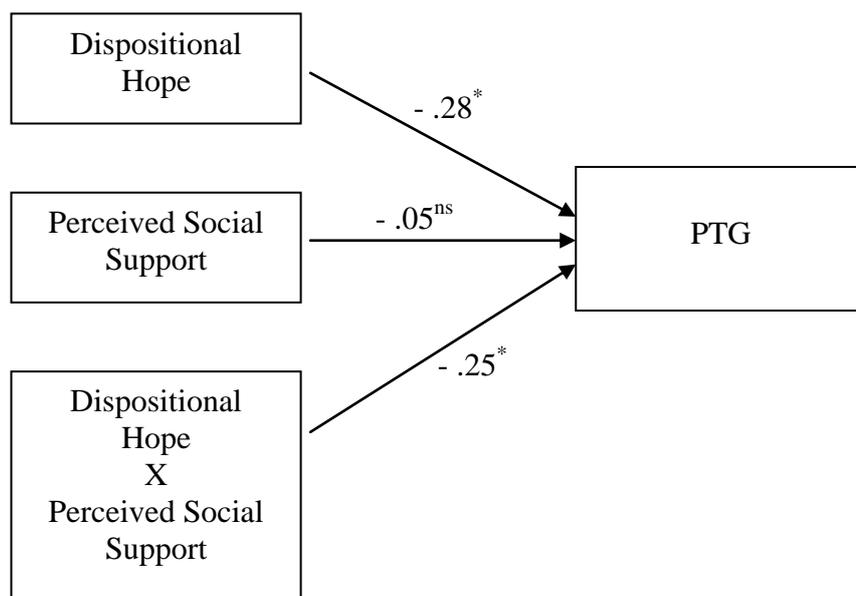
<b>IV</b>	<b>Mediator</b>	<b>DV</b>	<b>Mediation</b>
Dispositional Hope	PFC	PTG	No
Dispositional Hope	PFC	Relationship with Others	No
Dispositional Hope	PFC	Philosophy of Life	No
Dispositional Hope	PFC	Self-perception	No
Dispositional Hope	EFC	PTSD	No
Dispositional Hope	EFC	Avoidance	No
Dispositional Hope	EFC	Intrusion	No
Dispositional Hope	EFC	Hyperarousal	No
Dispositional Hope	PSS	PTG	No
Dispositional Hope	PSS	Relationship with Others	No
Dispositional Hope	PSS	Philosophy of Life	No
Dispositional Hope	PSS	Self-perception	No
Dispositional Hope	PSS from Family	PTG	No
Dispositional Hope	PSS from Family	Relationship with Others	No
Dispositional Hope	PSS from Family	Philosophy of Life	No
Dispositional Hope	PSS from Family	Self-perception	No
Dispositional Hope	PSS from Friend	PTG	No
Dispositional Hope	PSS from Friend	Relationship with Others	No
Dispositional Hope	PSS from Friend	Philosophy of Life	No
Dispositional Hope	PSS from Friend	Self-perception	No
Dispositional Hope	PSS from Significant Other	PTG	No
Dispositional Hope	PSS from Significant Other	Relationship with Others	No
Dispositional Hope	PSS from Significant Other	Philosophy of Life	No
Dispositional Hope	PSS from Significant Other	Self-perception	No

### 3.5 Social Support as a Moderator

In order to test the moderating role of perceived social support and its subscales in the relationship between dispositional hope and PTG, four hierarchical multiple regression analyses were performed. Dispositional hope was entered in the first step for all hierarchical regression models. In the second step, perceived social support, perceived social support from family, friend or significant other were entered into the equation. The interactions between dispositional hope and perceived social support, perceived social support from family, friend or significant other were entered into the equation in the final step.

In the first hierarchical regression model, dispositional hope had significant main effect on PTG ( $\beta = -.28, p < .05, R^2 = .08$ ), whereas, the main effect of perceived social support on PTG was not significant ( $\beta = -.05, p = .65, R^2 = .00$ ). That is, dispositional hope was negatively associated with PTG among participants, whereas, perceived social support was not significantly associated with PTG among participants. However, the interaction of dispositional hope and perceived social support was significant ( $\beta = -.25, p < .05, R^2 = .05$ ) in predicting PTG. Thus, perceived social support moderated the relationship between dispositional hope and PTG (See Figure 14). Using procedures recommended by Cohen and colleagues (2002), the simple regression of PTG on dispositional hope was computed for high (15.09) and low (-15.09) levels of perceived social support (i.e.  $M \pm SD$ ). Next, the slope of each regression was examined to see whether they were statistically significant (Aiken & West, 1991). According to the analysis, the negative regression of PTG on dispositional hope and occurred when perceived social support was high

(slope coefficient = -3.45,  $t(69) = -3.12$ ,  $p < .01$ ) but not when perceived social support was low (slope coefficient =  $-.86$ ,  $t(69) = -1.13$ ,  $p = .26$ ). Accordingly, low levels of perceived social support did not make a difference between participants who were high and low in dispositional hope in terms of PTG. However, participants who were low in dispositional hope and perceived high levels of social support tended to develop more PTG as compared to participants who were high in dispositional hope and perceived high levels of social support. In other words, high perceived social support buffered the negative effects of low dispositional hope in developing PTG (See Figure 15).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 14. Perceived Social Support as a Moderator on the Relationship between Dispositional Hope and PTG.

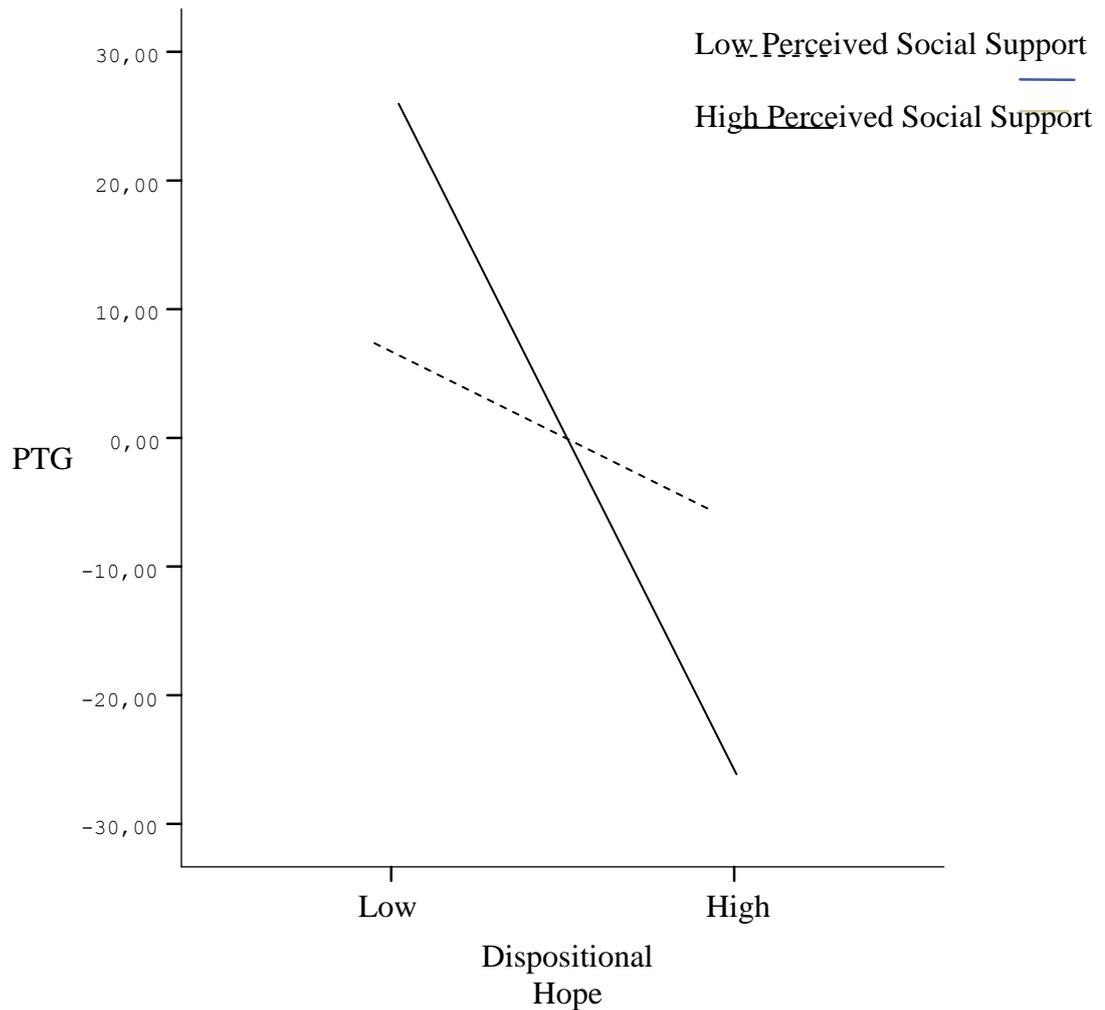
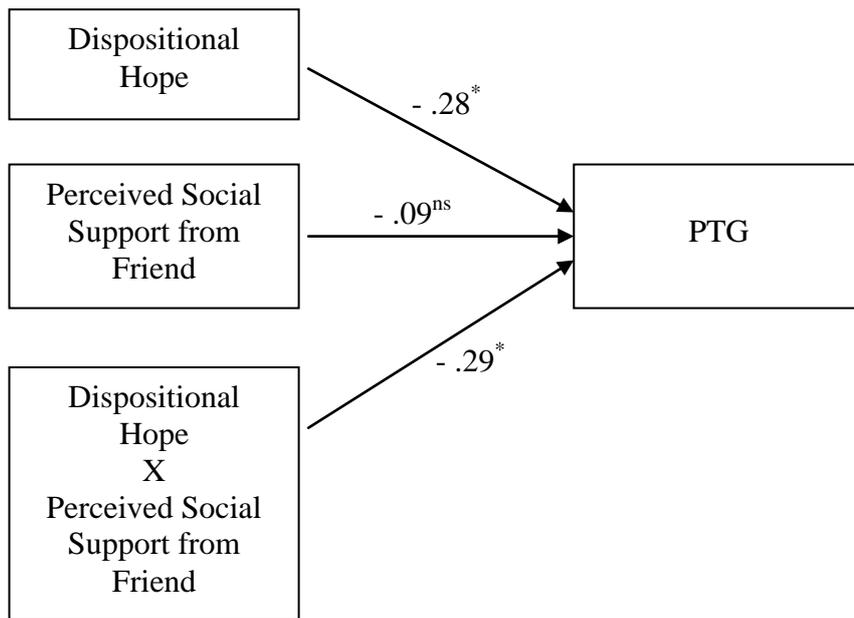


Figure 15. Interaction plot for dispositional hope and perceived social support

The second hierarchical regression model was conducted in order to test the moderating role of perceived social support from friend on the relationship between dispositional hope and PTG. In this hierarchical regression analysis, dispositional hope was significantly associated with PTG ( $\beta = -.28, p < .05, R^2 = .08$ ), whereas, perceived social support from friend was not associated with PTG ( $\beta = -.09, p = .45, R^2 = .01$ ). However, the interaction of dispositional hope and perceived social support from friend demonstrated a significant relationship with PTG ( $\beta = -.29, p < .05, R^2 = .08$ ). Thus, perceived social support from friend moderated the relationship

between dispositional hope and PTG (See Figure 16). Using procedures recommended by Cohen and colleagues (2002), the simple regression of PTG on dispositional hope was computed for high (7.19) and low (-7.19) levels of perceived social support (i.e.  $M \pm SD$ ). Next, the slope of each regression was assessed in order to see whether they were statistically significant (Aiken & West, 1991). It was found that the negative regression of PTG on dispositional hope occurred when perceived social support was high (slope coefficient = -3.57,  $t(69) = -3.48$ ,  $p = .001$ ) but not when perceived social support was low (slope coefficient = -.6,  $t(69) = -.79$ ,  $p = .43$ ). Accordingly, low levels of perceived social support from friend did not make a difference between participants who were high and low in dispositional hope in terms of PTG. However, participants who were low in dispositional hope developed higher levels of PTG when they perceived high levels of social support from friend. On the other hand, participants who were high in dispositional hope did not tend to develop higher levels of PTG even if they perceived high levels of social support from friend (See Figure 17).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 16. Perceived Social Support from Friend as a Moderator on the Relationship between Dispositional Hope and PTG.

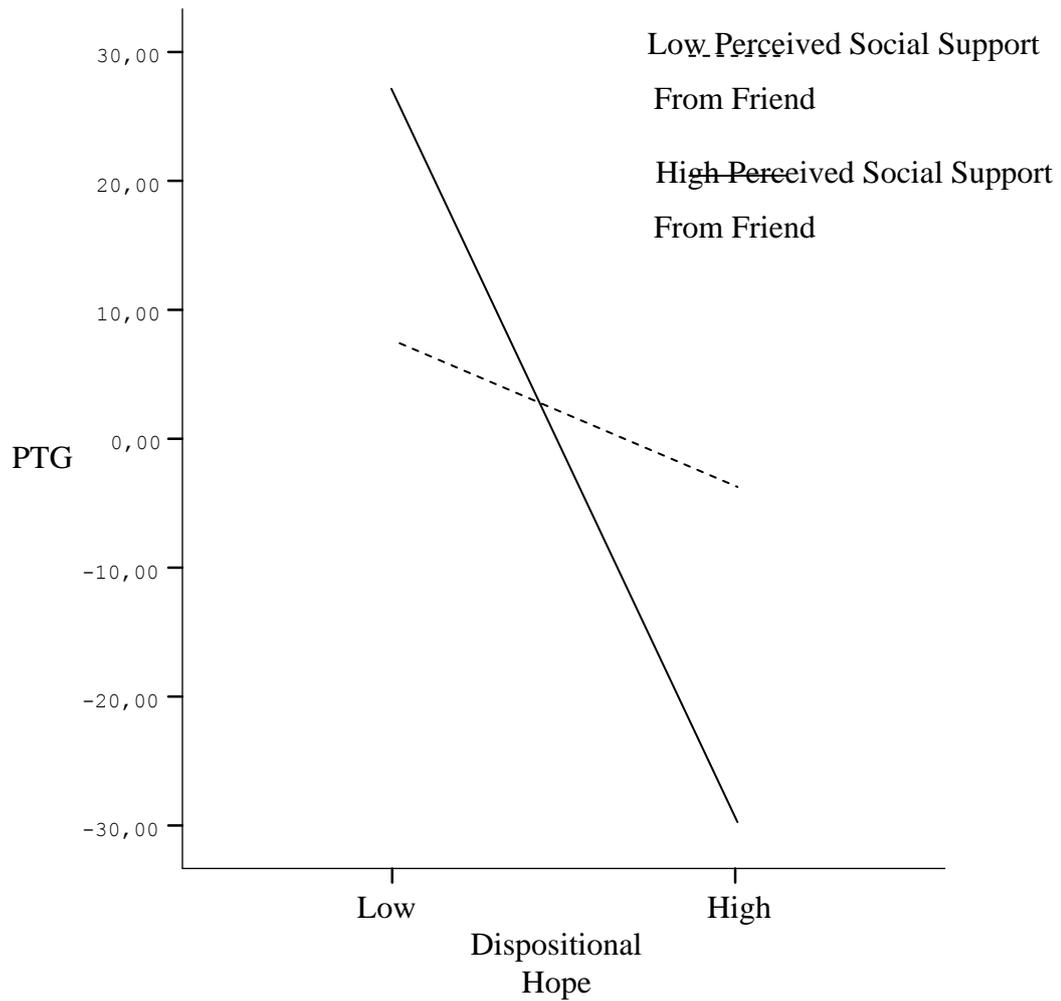
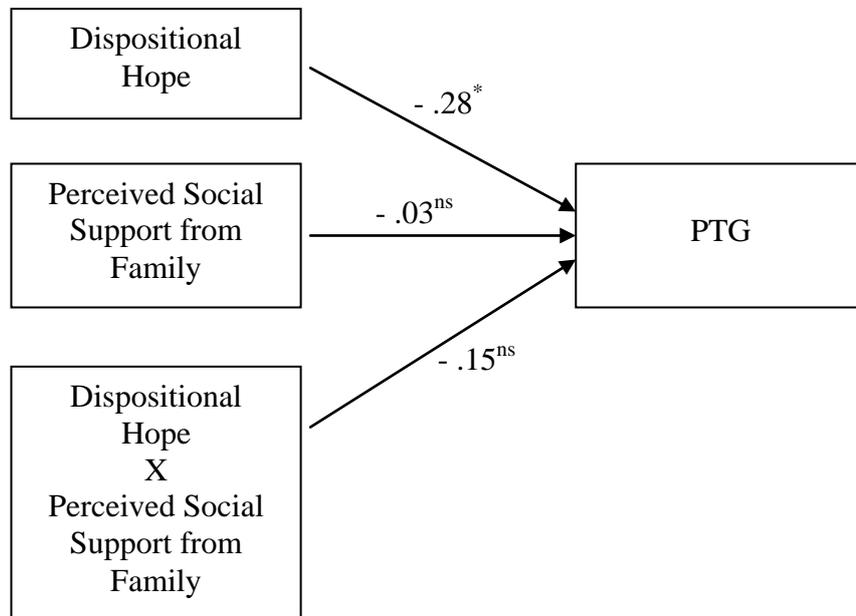


Figure 17. Interaction plot for dispositional hope and perceived social support from friend

The third hierarchical regression model was tested to assess the moderating role of perceived social support from family on the relationship between dispositional hope and PTG. Although, there was a significant main effect of dispositional hope on PTG ( $\beta = -.28, p < .05, R^2 = .08$ ), the effects of perceived social support from family ( $\beta = -.03, p = .80, R^2 = .001$ ) and dispositional hope-perceived social support from family interaction were not significant ( $\beta = -.15, p =$

.23,  $R^2 = .02$ ). Therefore, perceived social support from family did not moderate the relationship between dispositional hope and PTG (See Figure 18).

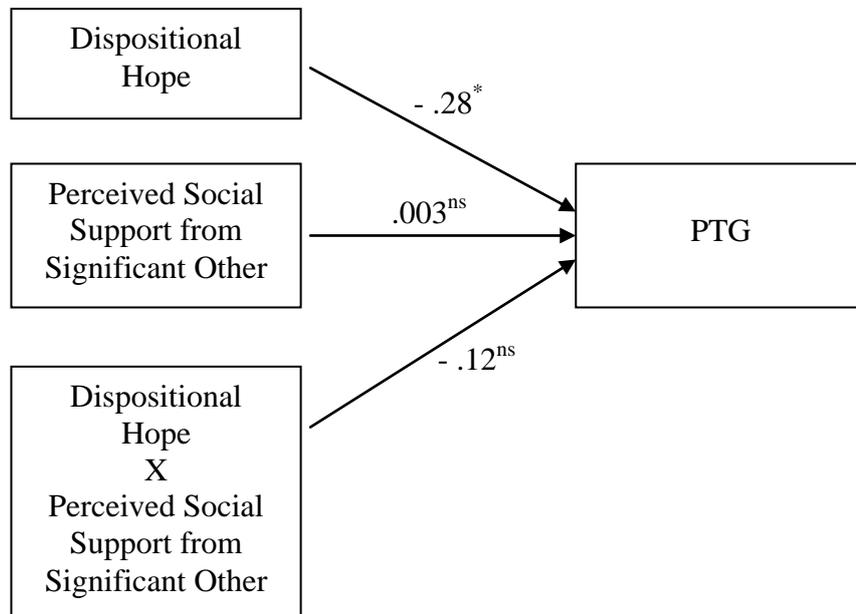


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 18. Perceived Social Support from Family as a Moderator on the Relationship between Dispositional Hope and PTG.

The last hierarchical regression model was conducted to assess the moderating role of perceived social support from significant other on the relationship between dispositional hope and PTG. According to the analysis, dispositional hope was significantly associated with PTG ( $\beta = -.28$ ,  $p < .05$ ,  $R^2 = .08$ ). However, the effects of both perceived social support from significant other ( $\beta = .003$ ,  $p = .98$ ,  $R^2 = .00$ ) and interaction of dispositional hope and perceived social support from significant other were not significant ( $\beta = -.12$ ,  $p = .31$ ,  $R^2 = .01$ ). That is, perceived

social support from significant other did not moderate the relationship between dispositional hope and PTG, as well (See Figure 19).



Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 19. Perceived Social Support from Significant Other as a Moderator on the Relationship between Dispositional Hope and PTG.

## **CHAPTER IV**

### **DISCUSSION**

Breast cancer is a chronic, life-threatening disease and breast cancer patients adjust to this highly stressful situation either positively or negatively. In other words, breast cancer patients may develop PTSD or PTG while adjusting to breast cancer. To be able to understand this adjustment process better, the aim of the present study was to test three mediation models in order to investigate the mediating role of coping styles (PFC and EFC) and both mediating and moderating roles of perceived social support between dispositional hope-PTG/PTSD relationships among postoperative breast cancer patients. In this chapter, the results of the current study will be discussed. In the first part, demographic and illness related characteristics of the participants and the results of mediation and moderation analyses will be discussed. In the second part, limitations of the study, clinical implications, and suggestions for future research will be presented.

#### **4.1 Demographic and Illness-Related Characteristics of the Sample**

The relationship between some demographic characteristics of participants - education level, marital status, perception of income level, work status (working or not working), having children- and study variables were assessed.

Considering education level, it was found that primary school graduates reported more intrusion, hyperarousal, and PTSD in both phase 1 and 2 than

university and graduate school graduates. The result is congruent with the study of Cordova and colleagues (1995). They indicated that less education is associated with PTSD-like symptoms among breast cancer patients. In another study, women who had undergone autologous bone marrow transplantation for breast cancer, had more disease at the time of transplantation and longer hospital stays for transplantation reported more symptoms of PTSD if they had less education (Jacobsen et al., 1998). Jacobsen and colleagues (1998) indicated that women who were less educated, had fewer cognitive, emotional and material resources for coping with this stress, thus, they were more likely to develop PTSD. Although, less education was associated with PTSD, primary school graduates developed more PTG and self-perception in phase 2 than high school and university/graduate school graduates. This finding is consistent with the literature, as well. Widows and colleagues (2005) reported that less education level is related to greater PTG among cancer patients undergoing bone marrow transplantation. In addition, breast cancer survivors with higher education reported less PTG (Weiss, 2004). Accordingly, Frazier and colleagues (2002) stated that education level is negatively correlated with religious or spiritual coping whereas religious or spiritual coping was positively related to PTG (cited in Weiss, 2004; p. 744). Similarly, Koenig (1998) mentioned that religious faith is the most important factor in coping among medically ill hospitalized older adults, and religious attendance-coping is associated with lower education. Therefore, negative association between education and PTG is expected when considering religious/spirituality coping. The other finding revealed that primary school graduates use more EFC than high school graduates. This result is consistent with the finding of Ben-Zur and colleagues (2001) in indicating that high education level was

related to low EFC among breast cancer patients. Less-educated individual had poor cognitive, emotional or instrumental resources in order to cope with a life-crisis, as Jacobsen and colleagues (1998) mentioned. PFC includes coping styles that require actively struggle with the life crisis such as planning of problem-solving, seeking instrumental social support and etc. As it was suggested above, PFC requires cognitive, emotional and instrumental resources in order to deal with a problem actively. Therefore, less-educated individual may not be able to use PFC but EFC while dealing with a problem.

As education level, income level had effect on both PTSD and PTG. Participants, who reported their income level as low, had higher scores on PTSD and hyperarousal in phase 2 than participants who indicated their income level as middle and high. This finding is consistent with the literature suggesting that lower income is associated with PTSD-like symptoms (Cordova et al., 1995), whereas higher income is related to greater PTG among breast cancer patients (Cordova et al., 2001). Besides, Green and colleagues (1998) indicated that avoidance, which is one of the symptoms of PTSD, is negatively associated with income. The findings are convenient when considering high-level income as an important instrumental resource in dealing with expensive treatment of breast cancer. Therefore, high-level income may play a protective role for participants in coping with breast cancer, which in turn lead to PTG. On the other hand, participants who reported their income as low developed more PTG in phase 1 and changes in self-perception in phase 2 than participants who indicated their income as middle and high. The finding is congruent with the study of Tomich and Helgeson (2004) demonstrating that breast cancer patients who had low SES (including education, income and

occupation), perceived more benefits from cancer experiences. Tomich and Helgeson (2004) explained this finding by considering not only income but also education and occupation. Accordingly, they indicated that women of lower SES have already dealt with problems associated with low income, education, and lack of occupation in their lives. Therefore, participants of lower SES may try to find more benefits and constitute meanings from this cancer experience as they always do when dealing with negative side of low SES.

Findings of the current study revealed that marital status of participants is associated with PTSD and PTG, as well. Participants who were married, developed more PTG, changes in self-perception, and relationship with others in phase 1 than single, divorced, and widow participants. This finding is congruent with the literature suggesting that having a partner or being married is associated with PTG, relationship with others, new possibilities, appreciation of life among breast cancer patients (Bellizzi & Blank, 2006; Mystakidou et al., 2008). Contrary to these findings, participants who were married reported more avoidance in phase 1 than single, divorced and widow participants in the current study. One explanation of this finding is that marital satisfaction and/or quality may be more decisive than being married in developing PTSD and/or PTG. According to Pistrang and Barker (1995), marital satisfaction is associated with psychological well-being among women with breast cancer diagnosis. Another study indicated that protective buffering –hiding one’s concerns, denying one’s worries, hiding negative information- and overprotection –underestimation of the patient capacity, unnecessary help to patient- are negatively associated with marital satisfaction, and they perceived as unhelpful by partners who had cancer (Hagedoorn et al., 2000). Rodrigue and Park (1996)

indicated that cancer patients who had low marital quality reported more depression, anxiety, less positive health care orientation, and more illness-induced family difficulties than cancer patients who had high marital quality. Therefore, low marital satisfaction and/or quality may also lead to PTSD and/or its symptoms regardless of being married.

In the current study, only one illness-related characteristic -stage of breast cancer- was associated with outcome variables. Results revealed that participants with stage I and IV cancer reported more relationship with others in phase 1 than those with stage III cancer. The literature and the results of the current study demonstrated inconsistencies about the relationship between the stage of cancer and psychological outcomes. According to the literature more advanced breast cancer was associated with more severe PTSD symptoms (Jacobsen et al., 1998; Andrykowski & Cordova, 1998). Contrary to these findings, breast cancer patients who received chemotherapy and also had a low disease stage were more likely develop PTSD (Amir & Ramati, 2002). Considering the relationship between PTG and stage of breast cancer, Lechner and colleagues (2003) indicated that cancer patients with stage II disease had significantly higher scores on benefit finding including improved relationships, enhanced appreciation of life, increased resilience, and self-reliance than those with stage IV and I. Contrary to this finding, Andrykowski and colleagues (1996), suggested that higher cancer stage is associated with benefits regarding the love felt for the spouse (cited in Stanton et al., 2006; p. 158). In addition, women diagnosed with more severe breast cancer perceived more benefits from cancer experience following diagnosis than women diagnosed with less severe breast cancer (Tomich & Helgeson, 2004). According to these inconsistent

results, there are some explanations considering both advanced and early-stage breast cancer in developing PTG. Higher stages were associated with lower survival rates and required more constant medical attention and eventually palliative care (Costar et al., 2005). Thus, Stanton and colleagues (2006) explained that having advanced cancer is likely to provoke the search for meaning, and patients with advanced cancer try to find benefit from their experience to a greater extent. Considering the previous study, participants who were at stage IV may be more involved to cancer-related situations and thoughts, trying to be away from daily problems, responsibilities etc. Thus, they may concentrate on finding a meaning or benefit from their cancer experiences more than participants who were at the lower stage. As mentioned earlier, participants who were at stage I did also report more relationships with others. Although early-stage breast cancer patients had concerns about recurrence, pain, death, harm from adjuvant treatment, and bills (Spencer et al., 1999), these concerns and the high possibility of survival may lead participants to review and enhance their relationships with others on those days and after recovery. The other findings of the study demonstrated that participants who did not know the stage of their breast cancer indicated more relationship with others in phase 1, PTSD and intrusion in phase 2 than participants with stage III breast cancer. There are not enough findings about breast cancer patients who do not know the stage of their cancer. Findings of the current study may be explained according to Horowitz's social cognitive model of PTSD. As mentioned, since cancer is a trauma, one reason of developing PTSD is failure in integrating the traumatic information into his or her longer term schematic representations about the self and future goals. Therefore, lack of information about trauma –stage of cancer- may prevent understanding all aspects

of cancer and integrating this information into the existing cognitive world models; and this may lead to experience of intrusions, flashbacks, unwanted thoughts, numbing, and other forms of posttraumatic stress.

Participants who had children reported more PTSD, intrusion in phase 1 and 2, and avoidance in phase 1 than participants who had no children. One possible explanation is about children with psychological and/or behavioral problems. Results revealed that many of breast cancer patients' school-aged children had emotional and behavioral problems. Accordingly, quality of lives (physical and mental quality) of the patients was related to the problems of their children's problems. For example, physical symptoms which impede quality of life, was associated with increased child problems (Watson et al., 2006). Moreover, the patients might have worried about their children's future in the absence of themselves. Beside, Boyer and colleagues (2002) indicated that breast cancer patients experience PTSD symptoms more likely when their daughters experienced PTSD symptoms depending on their own breast cancer. Therefore, having children with behavioral and emotional problems may lead to distress, PTSD, and other problems among breast cancer patients. On the other hand, participants who had children experienced more changes in philosophy of life in phase 1 and 2, self-perception, and PTG in phase 2. This finding may be explained in terms of perceived social support from family. Children of participants might be a source of support for participants and prevent them from negative aspects of having cancer, thus, participants who had children reported more PTG than participants who had no children. Lastly, considering the work status, participants who worked reported more dispositional hope than participants who did not work. As mentioned previously, Snyder (1991) defined hope as a motivational state, and hope is

constituted by an interaction of a sense of successful agency (goal-directed energy) and pathways (planning to meet goals) (as cited in Snyder, 2002; p. 250). Besides, high-hope individuals find alternative routes (Irving et al., 1998); tailor their routes effectively and reach their goals quickly (Snyder, 2002). Therefore, it might be considered that participants, who worked, might deal with issues related to work, try to find solutions and/or alternatives, and solve problems as fast as possible. Accordingly, it might be assumed that participants, who worked, had more experience about coping with a problem than participants who did not work. Therefore, working participants reported more dispositional hope when faced with a problem than participants who did not work.

As it can be seen, participants generally reported both PTSD and PTG considering demographic and illness-related variables (education level, stage of cancer, having children). These results are consistent with the literature. Morrill and colleagues (2007) indicated that PTG had a positive association with posttraumatic stress symptoms among breast cancer patients. Moreover, breast cancer patients who perceived cancer as a traumatic stressor experienced both stress response symptoms and perceptions of positive changes (Cordova et al., 2007). There is a possible explanation for these findings. Since breast cancer is a trauma, it involves actual and/or threatened death and had a threat to physical integrity. Accordingly, breast cancer patients feel fear, helplessness, and horror due to cancer. In addition, all types of trauma and breast cancer appear suddenly and disrupt individual's prior beliefs, thoughts, appraisals about life and others. Therefore, while breast cancer patients experienced these PTSD-symptoms, they may also try to find benefit from this experience, restructure their beliefs, thoughts, and appraisals about life and change

life priorities. As a result, participants developed both PTSD and PTG regardless of their demographic and illness-related characteristics.

## **4. 2. An Overview of Mediation Models**

In the light of the hypotheses, 24 mediation models were constructed in order to test the mediator effects of PFC, EFC, and different sources of perceived social support. PFC was investigated as a mediator on the relationships between dispositional hope-PTG and its subscales. Then the mediator effects of EFC on the relationship between dispositional hope-PTSD and its subscales were tested. Lastly, perceived social support and its sources were examined as a mediator on the relationship between dispositional hope-PTG and its subscales. According to findings, PFC, EFC and perceived social support and its sources did not mediate the relationships that were mentioned above. Possible explanations of these results will be discussed in the next section.

### **4.2.1 Results of Mediation Models of PFC and EFC**

The first hypothesis of the study suggesting that dispositional hope would influence the development of PTG through the mediation of PFC among postoperative breast cancer patients, was not confirmed for both global PTG and its subscales -‘relationship with others’, ‘philosophy of life’ and ‘self-perception’-. In other words, using PFC in dealing with breast cancer did not have an effect on the relationship between dispositional hope and PTG/ its subscales. Similarly, The

second hypothesis of the study suggesting that dispositional hope would influence the development of PTSD through the mediation of EFC among postoperative breast cancer patients was not confirmed for both global PTSD and its subscales – ‘avoidance’, ‘hyperarousal’, and ‘intrusion’. Using EFC in dealing with breast cancer did not have an effect on the relationship between dispositional hope and PTSD/ its subscales. There may be several reasons of these findings. One of the possible explanations is about the complex structure of coping styles. As mentioned previously, there was a consensus about the classification of coping styles. Accordingly, these classification was based on two distinctions that resulted in four categories; PFC vs. EFC and approach vs. avoidance coping. Nes and Segerstrom (2006) suggested that an individual copes with a problem by using PFC (e.g problem-solving) in approach means (trying to solve the problem actively) or in avoidance means (solve the problem by disengaging from the problem), as well as, individual deal with a problem by using EFC in approach means (e.g. change one’s feelings about the problem) or in avoidance means (distracting oneself from one’s feelings about the problem). Accordingly, avoidance coping was associated with poor adjustment and more emotional distress whereas approach coping was related to better adjustment and less emotional distress among breast cancer patients, as mentioned in literature. In the present study, coping styles of participants were assessed according to only one distinction, and therefore, two categories which are PFC and EFC. Therefore, PFC would mediate dispositional hope-PTG relationship, if the participants had used approach-oriented PFC. Similarly, EFC would mediate dispositional hope-PTSD relationship, if the participants had used avoidance-oriented EFC. Another possible explanation arises depending on cancer-related factors and

the issue about the matching of appropriate coping styles (PFC & EFC) to cancer-related factors. In general, having cancer leads to some problems, such as dealing with the diagnosis, surgery, adjuvant treatment, routine controls etc. During this process of dealing with many cancer related problems, PFC may not be appropriate for each problem faced with at any phase of treatment; and therefore may affect adjustment inversely even if it is considered helpful in the adjustment of breast cancer patients according to the literature. On the other hand, EFC may be appropriate for some problems faced with at a particular phase of treatment, and influence adjustment in a positive way despite the fact that the literature considers it unhelpful during the adjustment process of breast cancer patients. Dunkel-Schetter (1992) stated that cancer leads to painful symptoms, ambiguity about prognosis, changes in social networks etc. If a patient has physical pain or discomfort, the best strategy might be PFC (seeking an advice of a doctor/physician). However, EFC (emotion regulating using distracting or avoidance) might be more useful than PFC in the case that a patient has ambiguity about the future. Accordingly, some studies demonstrated the effectiveness of distancing conceptualized under EFC on emotional distress among cancer patients (Dunkel-Schetter, 1992; Nes & Segerstrom, 2006). Therefore, if the patients cope with breast cancer by using PFC situation arised during any phase of the adjustment process, they may not experience positive changes. Besides, the stage of cancer and the time since diagnosis may influence the effectiveness of PFC and EFC among breast cancer patients. For example, Carver and colleagues (1989) mentioned previously that spirituality/religious coping was categorized under both PFC and EFC and the time of using spirituality/religious coping is important in order to cope with cancer. Spirituality/religious coping may be

admitted as a PFC and appropriate when participants are at higher stage and/or terminally-ill and appraise this situation as not changeable (thinking that nothing can be done). Accordingly, McClain and colleagues (2003) indicated that spirituality (spiritual well-being) was associated with some protection against end-of-life despair among terminally-ill cancer patients. However, spirituality/religious coping may not be effective when participants diagnosed with low stage cancer or when they are , and newly diagnosed because at the beginning of the process, patients need to make decisions related to the process and cope with many problems, such as physical pain depending on adjuvant treatment and surgery. Therefore, if spirituality/religious coping is used as an EFC at first, it may not be associated with positive changes, such as PTG in breast cancer patients. As a result, in the present study, mediator roles of PFC and EFC may be affected by the timing of the coping strategies used by the patients. As spirituality/religious coping, other types of PFC or EFC that participants used and the time of using them may affect the mediator roles of EFC and PFC.

#### **4.2.2 Mediation & Moderation Models of Perceived Social Support**

The third hypothesis which was about the mediator role of perceived social support and its sources on the relationships between dispositional hope-PTG and its subscales was not supported. This finding is contradictory with the literature that demonstrated the mediating role of social support on different relationships. According to Salsman and colleagues (2005), social support mediated the relationship between spirituality/religiousness and adjustment (distress and life

satisfaction). However, the studies about perceived social support generally mention the moderating role of social support depending on its buffering effect. Accordingly, the mediation roles of perceived social support and its sources were not confirmed but the moderation roles of perceived social support and perceived social support from friend were supported in the current study. Therefore, the ‘buffering’ effect of perceived social support may be more distinctive than the mediation effect of it.

The fourth hypothesis which was about the moderating role of perceived social support and its sources on the relationship between dispositional hope and PTG among postoperative breast cancer patients was supported for only perceived social support and perceived social support from friend. The first finding indicated that participants who were low in hope developed more PTG than participants who were high in hope if they perceived higher levels of social support. It is consistent with other studies that showed the moderating role of perceived social support. Accordingly, Demirtepe-Saygılı and Bozo (2011) indicated that perceived social support moderated the relationship between satisfaction of basic needs, performing daily activities and psychological symptoms among caregivers of children with leukaemia. Besides, considering the moderator role of perceived social support from friend, participants who were low in hope developed higher levels of PTG if they perceived higher levels of social support from friend. There is a consistency between these findings and ‘stress-buffer hypothesis’, as mentioned previously (Cobb, 1976; Cohen & McKay, 1984; Cohen & Willis, 1985). Accordingly, perceived social support and perceived social support from friend seemed to buffer for the negative effects of low dispositional hope, and lead to PTG. As mentioned earlier, in these findings, there were unexpected directions in the moderating role of high levels

perceived social support and perceived social support from friend. Participants who were high in hope developed lower levels of PTG even if they perceived higher levels of social support in general and social support from friend. In addition, the moderating role of perceived social support from family and significant other on the relationship between dispositional hope and PTG were not supported. These findings are inconsistent with the literature showing that perceived social support from a private person moderated the relationship between dispositional optimism and PTG among postoperative breast cancer patients (Bozo et al., 2009) and the moderating role of perceived social support from family on the relationship between illness-related physical dysfunction and psychological well-being among end-stage renal disease patients (Christensen et al., 1989).

There are some possible explanations for these inconsistent findings of both mediating and moderating role of perceived social support. One possible explanation is about the importance of support types (tangible, appraisal, and emotional support) more than sources of social support. Cohen and Mckay (1984) showed the importance of types of support in the buffering model of social support and indicated that each support type meets different needs of an individual and lead to different effects on an individual. According to a review, cancer patients prefer emotional support and emotional support is associated with better adjustment (Helgeson & Cohen, 1996). Trunzo and Pinto (2003) indicated that affective social support (emotional social support) mediated the negative association between optimism and emotional distress among early-stage breast cancer survivors. In another study, emotional support at baseline and emotional and informational support were significantly related to patients' health-related quality of life and self-efficacy at 5

month follow-up among breast cancer patients (Arora et al., 2007). Accordingly, participants' families and/or significant others may provide tangible, appraisal, or other types of support rather than emotional support although the participants might not prefer these types of support. For this reason, the match between the type of support provided by the families and significant others and the need of the patients may affect the moderating role of social support.

Accordingly, type of support and the source of social support might not have matched in the current study. For example, participants might have expected tangible support from family and/or friends; however, family and/or friend provided them only emotional support. This may be the reason of why perceived social support did not mediate the relationship between dispositional hope and PTG in the current study.

There are some consistent findings which confirm this explanation. According to Bloom and Spiegel (1984), emotional support from family was associated with advanced breast cancer patients' sense of well-being. Primomo and colleagues (1990) indicated that affect, affirmation and reciprocity which may be considered as emotional support from both the partner and family were related to less depression, higher marital quality, and better family functioning among women experiencing the chronic illness. Another study suggested that empathic support (emotional support) was needed from all sources like family members, close friends, and medical professionals whereas informational support (advice, telling what to expect, answering questions) was expected from surgeons rather than from family and friends (Neuling & Winefield, 1988). Similarly, lack of information from physician was problematic, on the other hand, the problem emerged when family and

friend provided too much information to breast and colorectal patients (Dunkel-Schetter, 1984). Accordingly, type of support and the person who provides it may not be matched among participants, thus, perceived social support from family and significant other did not moderate the relationship between dispositional hope and PTG.

### **4.3 Limitations of the Study**

One of the limitations is about the way of gathering data. The answers were gathered from participants orally. Thus, participants might have given socially desirable answers. In addition, since most of the participants were primary school graduates, sometimes questions were need to be read for the second time to participants, and the words which the participants did not understand were explained in general in a nondirective way. Therefore, this might have influenced the reliability of the findings. In addition, the time 2 measurements of PTSD and PTG were gathered via post and the participants were asked to fill out the scales by themselves. Thus, it might lead to differences in measurements of PTSD and PTG in time 1 and 2 regardless of time.

Another limitation of the study is insufficient sample size among groups of having children (having children and having no children), education level (primary, high school, university-graduate school graduates), marital status (married and single-divorced-widow), perception of income level (low and middle-high), stage of cancer (stage I, stage III, stage IV, not know the stage) and work status (working and not working) in the study. Therefore, the comparison of groups of variables was not

possible. The reliability score of the Hope Scale is another limitation of the current study. The reliability of the Hope Scale was .40 which was quite low. Therefore, it might influence dispositional hope scores, accordingly the findings of the current study.

Outcome variables which were PTSD and PTG were assessed twice with three months interval. However, only second measurements of PTG and PTSD were examined in the present study. Therefore, changes of PTSD and PTG in time may not be understood completely among postoperative breast cancer patients.

The other limitation of the study is about the assessment of coping styles. Coping styles are generally categorized based on two distinctions and each of them have two categories (PFC-EFC and approach-avoidance coping) (e.g., Nes & Segerstrom, 2006). However, in the present study, The Ways of Coping Inventory which is based on three factors (PFC, EFC and indirect coping), is used. In addition, the types of PFC (problem-solving, seeking social support and etc.) and EFC (distracting, denial and etc.) were not salient. Therefore, the coping styles of the participants may not be assessed completely. In addition, which coping styles were used in which stage of breast cancer and the time of using them were important (e.g. McClain et al., 2003). However, stage of breast cancer and time since diagnosis were not considered when assessing coping styles of participants.

Lastly, the present study assessed the mediator and moderator roles of perceived social support and its sources. The type of support (emotional, tangible, appraisal and etc.) was not examined in the current study. However, the type of support (emotional, tangible, appraisal and etc.) was suggested to be important

among breast cancer patients (e.g., Neuling & Winefield, 1988; Dunkel-Schetter, 1984).

#### **4.4 Clinical Implications of the Study**

Since the moderator role of perceived social support and perceived social support from friend on the relationship between dispositional hope and PTG was confirmed, some interventions can be developed. First of all, group therapies such as psychodrama may be organized for breast cancer patients, thus, these group therapies can provide a kind of effective social support for them and breast cancer patients would feel that they are not alone. In addition, sharing emotions, thoughts, experiences, problems about breast cancer, and receiving support from a therapist and other breast cancer patients would increase their perception of social support in breast cancer patients, which in turn would give rise to positive adjustment.

Secondly, although perceived social support from family and significant other did not moderate the relationship between dispositional hope and PTG, perceived social support moderated the relationship between dispositional hope and PTG. Therefore, perceived social support can also be increased by working with all sources of social support such as family, friends, relatives, and significant of breast cancer patients. First, social support network of breast cancer patients should be identified. Then, appointments can be arranged with breast cancer patients' family, friends, relatives, and significant other in order to improve the quality of social support provided to the breast cancer patients. Therefore, in these appointments, the importance of social support, ways of improving social support, and the type of

support that need to be provided could be emphasized. In addition, family, friends, relatives and significant other of breast cancer patients sometimes cannot provide social support to breast cancer patient while they are trying to hide their negative emotions and thoughts evoked by the patients' situation, or due to marital problems arised by having a breast cancer patient in the family. During the therapy sessions, these problems can be identified and solutions to these problems can be introduced. Breast cancer patients can be encouraged in order to find hobbies and take part in a group about these hobbies in order to increase the perception of social support. Besides encouraging the breast cancer patients to find a hobby (e.g., handmades, paintings etc.), they also need to be provided opportunities (e.g. a place) to engage in these hobbies in hospitals, some associations etc. Another important source of social support is the one provided by the medical team members. For this reason, they need to educated about the importance of social support perceived by the patients, so that they could treat their patients appropriately.

#### **4.5 Directions for Future Studies**

In the present study, the data was collected only from Dr. Abdurrahman Yurtaslan Ankara Oncology Education and Research Hospital and the scales were applied orally to postoperative breast cancer patients. Therefore, future studies should gather data from different hospitals in order to prevent the problem of generalization of the findings. In addition, in future studies, scales should be applied to breast cancer patients when they could use their hands easily and must be filled by the participants in order to prevent socially desirable answers.

The present study assessed only the mediating and moderating role of perceived social support and its sources. Therefore, future studies should examine not only sources of perceived social support but also the type of support (emotional, appraisal and tangible). In addition, although coping styles were based on a distinction and four categories depending on this distinction, only the mediator roles of PFC and EFC on the relationship between dispositional hope and PTG, were tested. Besides, the stage of cancer and time since diagnosis might influence the effectiveness of PFC and EFC among postoperative breast cancer patients. Therefore, future studies should include all categories (PFC-EFC and approach-avoidance) of coping and their interaction with time since diagnosis and disease severity.

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## APPENDICES

### APPENDIX A

#### Gönüllü Katılım Formu / Informed Consent

Bu çalışma Yard. Doç. Dr. Özlem Bozo danışmanlığında ODTÜ Klinik Psikoloji Yüksek Lisans Öğrencisi İrem Yola tarafından meme kanseri olan kadınlarla yürütülen bir tez çalışmasıdır. Çalışmanın amacı katılımcıların meme kanserleriyle baş etme stratejileri, umut düzeyleri ve algıladıkları sosyal destek ile ilgili bilgi toplamaktır. Alınan bu bilgiler, 3 ay sonra sizden tekrar alınacaktır. Çalışmaya katılım tamamıyla gönüllülük temelinde olmaktadır. Cevaplarınız tamamıyla gizli tutulacaktır ve sadece araştırmacılar tarafından değerlendirilecektir. Elde edilecek bilgiler bilimsel yayınlarda kullanılacaktır.

Anket genel olarak kişisel rahatsızlık içerecek sorular içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi bir şeyden ötürü kendinizi rahatsız hissederseniz cevaplama işini yarıda bırakmakta serbestsiniz. Böyle bir durumda anketi uygulayan kişiye, anketi tamamlamadığınızı söylemeniz yeterli olacaktır. Anket sonunda, bu çalışmayla ilgili sorularınız cevaplanacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için ve katılım sırasında oluşabilecek her türlü rahatsızlıkta ODTÜ Klinik Psikoloji Yüksek Lisans Öğrencisi İrem Yola (Tel: 05547955067, e-mail: iremyola@gmail.com) ile iletişim kurabilirsiniz.

***Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum.*** (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Ad-Soyad

Tarih

İmza

## APPENDIX B

### Katılım Sonrası Bilgi Formu / Debriefing Form

Bu çalışma daha önce de belirtildiği gibi ODTÜ Klinik Psikoloji Yüksek Lisans Öğrencisi İrem Yola tarafından Yard. Doç. Dr. Özlem Bozo danışmanlığında yürütülen bir tez çalışmasıdır. Bu tez çalışmasında, meme kanseri olan operasyon geçirmiş kadınların meme kanserleriyle baş etme stratejileri, umut düzeyleri ve algıladıkları sosyal desteğin, yaşadıkları travma sonrası büyüme yada travma sonrası stres bozukluğu arasındaki ilişki incelenmektedir.

Yapılan araştırmalara göre meme kanseri tanısı konan kadınlar bu stresli duruma olumlu ya da olumsuz bir şekilde uyum göstermektedirler. Buna bağlı olarak meme kanseri olan kadınlar travma sonrası büyüme yada travma sonrası stres bozukluğu geliştirebilmektedirler. Araştırmalar kanserin de travmatik yaşantılardan biri olduğunu ve travma sonrası stres bozukluğunda yer alan olaydan kaçınma, olayı yeniden yaşama, aşırı uyarılma gibi belirtilerin kanser ve meme kanseri olan kadınlarda da olduğu bulunmuştur. Ayrıca meme kanseri olan kadınların travma sonrası büyüme olarak adlandırılan arkadaş ve aile ilişkilerinin güçlenmesi, yaşamın değerini bilme gibi durumlar yaşadıkları gözlenmiştir. Travma sonrası büyüme yaşantısına, meme kanseri olan kadınların umut düzeyleri, baş etme stratejileri ve algıladıkları sosyal desteğin bir katkısı olacağı beklenmektedir. Bu anlamda meme kanseri olan kadınların kullandıkları sorun odaklı baş etme stratejisinin onların umut düzeyleri ve travma sonrası büyüme yaşantısı arasındaki ilişkiyi etkilemesi beklenmektedir. Ayrıca, meme kanseri olan kadınların kullandıkları duygu odaklı baş etme stratejisinin ise onların umut düzeyleri ve travma sonrası stres bozukluğu arasındaki ilişkiye etkisi olması beklenmektedir. Son olarak, meme kanseri olan kadınların algıladıkları sosyal desteğin onların umut düzeyleri ve travma sonrası büyüme arasındaki ilişkiye etkisi olması beklenmektedir.

Bu çalışmadan alınacak ilk verilerin Mart 2010 sonunda elde edilmesi amaçlanmaktadır. Daha öncede belirtildiği gibi ilk verilerin toplanmasından 3 ay sonra sizden tekrar veri alınacaktır. Elde edilen bilgiler sadece bilimsel araştırma ve yazılarda kullanılacaktır. Çalışmanın sonuçlarını öğrenmek yada bu araştırma hakkında daha fazla bilgi almak için aşağıdaki isimlere başvurabilirsiniz. Bu araştırmaya katıldığınız için tekrar çok teşekkür ederiz.

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Yard. Doç. Dr. Özlem Bozo (Oda: B-221 –Orta Doğu Teknik Üniversitesi, Tel: (0312) 219 51 19, e-mail: [bozo@metu.edu.tr](mailto:bozo@metu.edu.tr))

## APPENDIX C

### Demografik Bilgi Formu / Demographic Information Form

**Yaş** : \_\_\_\_\_

**Eğitim Durumu** : \_\_\_ Okuryazar değil \_\_\_ Okuryazar \_\_\_ İlkokul  
\_\_\_ Ortaokul \_\_\_ Lise \_\_\_ Üniversite \_\_\_ Üniversite üstü

**Medeni durum** : \_\_\_ Bekar \_\_\_ Evli \_\_\_ Boşanmış \_\_\_ Eşi vefat etmiş(Dul)

**Algılanan Gelir Düzeyi:** \_\_\_\_\_ Düşük \_\_\_\_\_ Orta \_\_\_\_\_ Yüksek

**Yaşadığı şehir** : \_\_\_\_\_

**Mesleğiniz** : \_\_\_\_\_

**Çalışıyor musunuz?** : \_\_\_ Evet \_\_\_ Hayır

**Çocuğunuz var mı?** : \_\_\_ Evet \_\_\_ Hayır

**Evet ise kaç tane?** \_\_\_\_\_

**Bakmakla yükümlü olduğunuz başka biri var mı?** \_\_\_\_\_

**Ne kadar süre önce hasta olduğunuzu öğrendiniz?** \_\_\_\_\_

**Tanı aldığınızda hastalığınızın kaçınıcı evresindeydiniz?** \_\_\_\_\_

**Şu anda herhangi bir tedavi görüyor musunuz?** \_\_\_ Evet \_\_\_ Hayır

**Evet ise hangisi?** Kemoterapi \_\_\_\_\_  
Radyoterapi \_\_\_\_\_  
Hormon Tedavisi \_\_\_\_\_

**Kanserin ne kadar kontrol edilebilir bir hastalık olduğunu düşünüyorsunuz?**

Hiç \_\_\_\_\_ | \_\_\_\_\_ Orta \_\_\_\_\_ | \_\_\_\_\_ Tamamen  
(0) (1) (2) (3) (4)

**Adres:**

**Telefon:**

## APPENDIX D

### Algılanan Çok Yönlü Sosyal Destek Ölçeği / Multidimensional Scale of Perceived Social Support

Aşağıda 12 cümle ve her birinde de cevaplarınızı işaretlemeniz için 1 den 7ye kadar rakamlar verilmiştir. Her cümlede söyleneni sizin için ne kadar çok doğru olduğunu veya olmadığını belirtmek için o cümle altındaki rakamlardan yalnız bir tanesini daire içine alarak işaretleyiniz. Bu şekilde 12 cümlenin her birinde bir işaret koyarak cevaplarınızı veriniz.

1. İhtiyacım olduğunda yanımda olan özel bir insan var.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
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2. Sevinç ve kederimi paylaşabileceğim özel bir insan var.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

3. Ailem bana gerçekten yardımcı olmaya çalışır.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

4. İhtiyacım olan duygusal yardımı ve desteği ailemden alırım.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

5. Beni gerçekten rahatlatan bir insan var.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

6. Arkadaşlarım bana gerçekten yardımcı olmaya çalışırlar.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

7. İşler kötü gittiğinde arkadaşlarıma güvenebilirim.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

8. Sorunlarımı ailemle konuşabilirim.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

9. Sevinç ve kederlerimi paylaşabileceğim arkadaşlarım var.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

10. Yaşamımda duygularıma önem veren özel bir insanım.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

11. Kararlarımı vermede ailem bana yardımcı olmaya isteklidir.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
------------------	---	---	---	---	---	---	---	-----------------

12. Sorunlarımı arkadaşlarımla konuşabilirim.

Kesinlikle hayır	1	2	3	4	5	6	7	Kesinlikle evet
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## APPENDIX E

### Umut Ölçeği / The Hope Scale

Yönerge: Lütfen her bir maddeyi dikkatlice okuyunuz. Aşağıda verilen ölçeği kullanarak, sizi en iyi tanımlayan rakamı **1:** (Kesinlikle Katılmıyorum), **2:** (Kısmen Katılmıyorum), **3:** (Kısmen Katılıyorum), **4:** (Kesinlikle Katılıyorum), verilen boşluğun önüne yazınız. Aşağıda verilen ölçeği kullanarak cevaplamaya başlayınız. Bu envantere vereceğiniz cevaplar yalnızca araştırma amacıyla kullanılacağından gizli tutulacaktır.

İlgi ve desteğiniz için teşekkürler.

**1:** Kesinlikle Katılmıyorum

**2:** Kısmen Katılmıyorum

**3:** Kısmen Katılıyorum

**4:** Kesinlikle Katılıyorum

- \_\_\_ 1. Sıkıntılı bir durumdan kurtulmak için pek çok yol düşünebilirim.
- \_\_\_ 2. Enerjik bir biçimde amaçlarıma ulaşmaya çalışırım.
- \_\_\_ 3. Çoğu zaman kendimi yorgun hissederim.
- \_\_\_ 4. Herhangi bir problemin bir çok çözüm yolu vardır.
- \_\_\_ 5. Tartışmalarda kolayca yenik düşerim.
- \_\_\_ 6. Sağlığım için endişeliyim.
- \_\_\_ 7. Benim için çok önemli şeylere ulaşmak için pek çok yol düşünebilirim.
- \_\_\_ 8. Başkalarının pes ettiği durumlarda bile, sorunu çözecek bir yol bulabileceğimi bilirim.
- \_\_\_ 9. Geçmiş yaşantıları beni geleceğe iyi biçimde hazırladı.
- \_\_\_ 10. Hayatta oldukça başarılı olmuşumdur.
- \_\_\_ 11. Genellikle endişelenecek bir şeyler bulurum.
- \_\_\_ 12. Kendim için koyduğum hedeflere ulaşıyorum.

## APPENDIX F

### Baş Etme Becerileri Ölçeği / The Ways of Coping Inventory

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

	Hiç uygun değil	Pek uygun değil	Uygun	Oldukça uygun	Çok uygun
1. Aklımı kurcalayan şeylerden kurtulmak için değişik işlerle uğraşırım					
2. Bir sıkıntı olduğumu kimsenin bilmesini istemem					
3. Bir mucize olmasını beklerim					
4. İyimser olmaya çalışırım					
5. “Bunu da atlatırsam sırtım yere gelmez” diye düşünürüm					
6. Çevremdeki insanlardan problemi çözmede bana yardımcı olmalarını beklerim					
7. Bazı şeyleri büyütmemeye üzerinde durmamaya çalışırım					
8. Sakin kafayla düşünmeye ve öfkelenmemeye çalışırım					
9. Bu sıkıntılı dönem bir an önce geçsin isterim					
10. Olayın değerlendirmesini yaparak en iyi kararı vermeye çalışırım					
11. Konuyla ilgili olarak başkalarının ne düşündüğünü anlamaya çalışırım					
12. Problemin kendiliğinden hallolacağına inanırım					
13. Ne olursa olsun kendime direnme ve mücadele etme gücü hissedirim					
14. Başkalarının rahatlamama yardımcı olmalarını beklerim					
15. Kendime karşı hoşgörülü olmaya çalışırım					

16. Olanları unutmaya çalışırım					
17. Telaşımı belli etmemeye ve sakin olmaya çalışırım					
18. “Başa gelen çekilir” diye düşünürüm					
19. Problemin ciddiyetini anlamaya çalışırım					
20. Kendimi kapana sıkışmış gibi hissedirim					
21. Duygularımı paylaştığım kişilerin bana hak vermesini isterim					
22. Hayatta neyin önemli olduğunu keşfederim					
23. “Her işte bir hayır vardır” diye düşünürüm					
24. Sıkıntılı olduğumda her zamandakinden fazla uyurum					
25. İçinde bulunduğum kötü durumu kimsenin bilmesini istemem					
26. Dua ederek Allah’tan yardım dilerim					
27. Olayı yavaşlatmaya ve böylece kararı ertelemeye çalışırım					
28. Olanla yetinmeye çalışırım					
29. Olanları kafama takıp sürekli düşünmekten kendimi alamam					
30. İçimde tutmaktansa paylaşmayı tercih ederim					
31. Mutlaka bir yol bulabileceğime inanır, bu yolda uğraşırım					
32. Sanki bu bir sorun değilmiş gibi davranırım					
33. Olanlardan kimseye söz etmemeyi tercih ederim					
34. “İş olacağına varır” diye düşünürüm					
35. Neler olabileceğini düşünüp ona göre davranmaya çalışırım					
36. İşin içinden çıkamayınca “elimden bir şey gelmiyor” der, durumu olduğu gibi kabullenirim					
37. İlk anda aklıma gelen kararı uygulamam					
38. Ne yapacağıma karar vermeden önce arkadaşlarımla fikrini alırım					
39. Her şeye yeniden başlayacak gücü bulurum					
40. Problemin çözümü için adak adarım					
41. Olaylardan olumlu bir şey çıkarmaya çalışırım					
42. Kırgınlığımı belirtirsem kendimi rahatlamış hissedirim					
43. Alın yazısına ve bunun değişmeyeceğine inanırım					
44. Soruna birkaç farklı çözüm yolu ararım					
45. Başıma gelenlerin herkesin başına gelebilecek şeyler olduğuna inanırım					
46. “Olanları keşke değiştirebilseydim” derim					
47. Aile büyüklerine danışmayı tercih ederim					
48. Yaşamla ilgili yeni bir inanç geliştirmeye çalışırım					
49. “Her şeye rağmen elde ettiğim bir kazanç vardır” diye düşünürüm					
50. Gururumu koruyup güçlü görünmeye çalışırım					

51. Bu işin kefareтини (bedelini) ödemeye çalışırım					
52. Problemi adım adım çözmeye çalışırım					
53. Elimden hiçbir şeyin gelmeyeceğine inanırım					
54. Problemin çözümü için bir uzmana danışmanın en iyi yol olacağına inanırım					
55. Problemin çözümü için hocaya okunurum					
56. Her şeyin istediğim gibi olmayacağına inanırım					
57. Bu dertten kurtulayım diye fakir fukaraya sadaka veririm					
58. Ne yapılacağını planlayıp ona göre davranırım					
59. Mücadeleden vazgeçerim					
60. Sorunun benden kaynaklandığını düşünürüm					
61. Olaylar karşısında “kaderim buymuş” derim					
62. Sorunun gerçek nedenini anlayabilmek için başkalarına danışırım					
63. “Keşke daha güçlü bir insan olsaydım” diye düşünürüm					
64. Nazarlık takarak, muska taşıyarak benzer olayların olmaması için önlemler alırım					
65. Ne olup bittiğini anlayabilmek için sorunu enine boyuna düşünürüm					
66. “Benim suçum ne” diye düşünürüm					
67. “Allah’ın takdiri buymuş” diye kendimi teselli ederim					
68. Temkinli olmaya ve yanlış yapmamaya çalışırım					
69. Bana destek olabilecek kişilerin varlığını bilmek beni rahatlatır					
70. Çözüm için kendim bir şeyler yapmak istemem					
71. “Hep benim yüzümden oldu” diye düşünürüm					
72. Mutlu olmak için başka yollar ararım					
73. Hakkımı savunabileceğime inanırım					
74. Bir kişi olarak iyi yönde değiştiğimi ve olgunlaştığımı hissederim					

## APPENDIX G

### Travma Sonrası Gelişim Ölçeği / Posttraumatic Growth Inventory

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

0= Hastalığımdan dolayı böyle bir değişiklik yaşamadım

1= Hastalığımdan dolayı bu değişikliği çok az derecede yaşadım

2= Hastalığımdan dolayı bu değişikliği az derecede yaşadım

3= Hastalığımdan dolayı bu değişikliği orta derecede yaşadım

4= Hastalığımdan dolayı bu değişikliği oldukça fazla derecede yaşadım

5= Hastalığımdan dolayı bu değişikliği aşırı derecede yaşadım

	Hiç yaşamadım					Aşırı derecede yaşadım
1. Hayatıma verdiğim değer arttı.	0	1	2	3	4	5
2. Hayatımın kıymetini anladım.	0	1	2	3	4	5
3. Yeni ilgi alanları geliştirdim.	0	1	2	3	4	5
4. Kendime güvenim arttı.	0	1	2	3	4	5
5. Manevi konuları daha iyi anladım.	0	1	2	3	4	5
6. Zor zamanlarda başkalarına güvenebileceğimi anladım.	0	1	2	3	4	5
7. Hayatıma yeni bir yön verdim.	0	1	2	3	4	5
8. Kendimi diğer insanlara daha yakın hissetmeye	0	1	2	3	4	5

başladım.						
9. Duygularımı ifade etme isteğim arttı.	0	1	2	3	4	5
10. Zorluklarla başa çıkabileceğimi anladım.	0	1	2	3	4	5
11. Hayatımı daha iyi şeyler yaparak geçirebileceğimi anladım.	0	1	2	3	4	5
12. Olayları olduğu gibi kabullenmeyi öğrendim.	0	1	2	3	4	5
13. Yaşadığım her günün değerini anladım.	0	1	2	3	4	5
14. Hastalığımın sonra benim için yeni fırsatlar doğdu.	0	1	2	3	4	5
15. Başkalarına karşı şefkat hislerim arttı.	0	1	2	3	4	5
16. İnsanlarla ilişkilerimde daha fazla gayret göstermeye başladım.	0	1	2	3	4	5
17. Değişmesi gereken şeyleri değiştirmek için daha fazla gayret göstermeye başladım.	0	1	2	3	4	5
18. Dini inancım daha güçlendi.	0	1	2	3	4	5
19. Düşündüğümün daha güçlü olduğumu anladım.	0	1	2	3	4	5
20. İnsanların ne kadar iyi olduğu konusunda çok şey öğrendim.	0	1	2	3	4	5
21. Başkalarına ihtiyacım olabileceğini kabul etmeyi öğrendim.	0	1	2	3	4	5

## APPENDIX H

### Olay Etkisi Ölçeği-R / 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**, hastalığınızı ve hastalığınız dolayısıyla geçirdiğiniz ameliyatı düşünerek, bu zorlukların sizi ne kadar rahatsız ettiğini cümlelerin sağındaki beş kutucuktan yalnızca birini işaretleyerek belirtiniz.

	Hiç 0	Biraz 1	Orta Düzeyde 2	Fazla 3	Çok fazla 4
1. Hastalığı hatırlatan her türlü şey, hastalıkla ilgili duygularımı yeniden ortaya çıkardı	0	1	2	3	4
2. Uykuyu sürdürmekte güçlük çektim	0	1	2	3	4
3. Başka şeyler benim hastalık hakkında düşünmeyi sürdürmeme neden oldu	0	1	2	3	4
4. Alınan ve kızgın hissettim.	0	1	2	3	4
5. Hastalığı düşündüğümde ya da hatırladığımda, bu konunun beni üzmesine izin vermedim.	0	1	2	3	4
6. Düşünmek istemediğim halde hastalığı düşündüm	0	1	2	3	4
7. Hastalık hiç olmamış ya da gerçek değilmiş gibi hissettim	0	1	2	3	4
8. Hastalığı hatırlatan şeylerden uzak durdum	0	1	2	3	4
9. Hastalıkla ilgili görüntüler aniden zihnimde canlandı	0	1	2	3	4
10. Ürkek ve diken üstünde hissettim	0	1	2	3	4
11. Hastalık hakkında düşünmemeye çalıştım	0	1	2	3	4

12. Hastalıkla ilgili olarak hala pek çok duygum vardı, ancak bunlarla hiç ilgilenmedim	0	1	2	3	4
13. Hastalıkla ilgili hissizleşmiş gibiydim	0	1	2	3	4
14. Kendimi hastalığın ortaya çıktığı andaki gibi davranırken veya hissederken bulduğum oldu.	0	1	2	3	4
15. Uykuya dalmakta güçlük çektim.	0	1	2	3	4
16. Hastalıkla ilgili çok yoğun duygu değişiklikleri yaşadım.	0	1	2	3	4
17. Hastalığı hafızamdan (belleğimden) silmeye çalıştım	0	1	2	3	4
18. Dikkatimi toplamakta zorlandım.	0	1	2	3	4
19. Hastalığı hatırlatan şeyler fiziksel tepkiler göstermeme neden oldu (örneğin terleme, nefes almada güçlük, baş dönmesi, kalp çarpıntısı, gibi).	0	1	2	3	4
20. Hastalıkla ilgili rüyalar gördüm	0	1	2	3	4
21. Kendimi tetikte ve savunma durumunda hissettim.	0	1	2	3	4
22. Hastalık hakkında konuşmamaya çalıştım	0	1	2	3	4