**PREDICTOR VARIABLES OF
PSYCHOLOGICAL DISTRESS AND PERCEIVED GROWTH FOLLOWING
MOTOR VEHICLE ACCIDENTS**

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ABSTRACT

PREDICTOR VARIABLES OF

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This study aimed to examine the predictor variables of psychological distress and perceived growth among the survivors of motor vehicle accidents. Demographic characteristics as pre-accident variables, cognitive appraisals of the accident as accident related factors, coping strategies and social support as post-accident variables were used as predictors of distress and perceived growth. 200 adults (142 males and 58 females, ages between 18 and 65) participated in the study. Data was

collected by a questionnaire which consisted of four parts. Three trained interviewers who were undergraduate psychology students, administered the questionaire individually. The first part examined on socio-demographic variables. The second part explored variables related to the accident, such as the status of the survivor as driver or non-driver, existence of injury or death to others in the accident, treatment after the accident, duration of hospitalization. The third part focused on the subject's accident related appraisals such as perceived level of responsibility, fear, helplessness, danger, thinking of death to oneself or others, sense of control, perceived level of injury severity. The fourth part contained five scales. Psychological distress was assessed by Impact of Event Scale (IES). Coping strategies were assessed by Ways of Coping Questionnaire (WCQ). Stress Related Growth Scale (SRGS) was used to examine perceived growth. Social support was assessed via Social Support Scale and Depression scores of the participants were assessed by Beck Depression Inventory. The results revealed that the present sample was moderately distressed. The current distress level was significantly related to perceived growth. The general distress level was predicted by age, perceived threat and helplessness coping. Considering intrusive symptoms, age, not having social security entitlement, depression, perceived threat and helplessness coping were found to be significant predictors. Considering avoidant symptoms, years of education, depression and fatalistic coping were found to be significant predictors. Not having an insurance policy, perceived threat, optimistic/problem solving coping and fatalistic coping were found to be significant predictors of percieved growth

following motor vehicle accident. The findings are discussed within psychological distress and perceived growth. Limitations of the study, directions for future research and clinical implications are proposed.

Keywords: Accident, posttraumatic distress, coping, growth

ÖZ

MOTORLU TAŞIT KAZALARINDAN SONRAKİ STRES DÜZEYİ VE STRESE BAĞLI GELİŞME OLGUSUNUN YORDAYICI DEĞİŞKENLERİ

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Bu çalışmanın amacı trafik kazası geçiren kişilerin yaşadıkları psikolojik stresi ve strese bağlı gelişme düzeyleri ile bunların yordayıcılarını araştırmaktır. Kaza öncesi değişkenler kapsamında demografik değişkenler, kaza sırasındaki değişkenler kapsamında kazaya ait değişkenler ve kaza sırasındaki değerlendirmeler, kaza sonrasındaki değişkenler kapsamında da sosyal destek algısı ve stresle başa çıkma stratejileri yordayıcı değişkenler olarak ele alınmıştır. Çalışmaya trafik kazası geçirmiş 200 yetişkin (142 erkek ve 58 kadın, 18 ve 65 yaşları arasında) katılmıştır. Veriler dört bölümden oluşan bir anket yoluyla toplanmıştır. Psikoloji lisans öğrencilerinden oluşan üç eğitilmiş anketör, anketleri bireysel olarak

uygulamışlardır. Anketin birinci bölümünde sosyo-demografik bilgiler yer almaktadır. İkinci bölüm, kaza geçirenin sürücü olup olmadığı, kazada ölüm ya da yaralanma olup olmadığı, kaza sırasında alkollü olup olmama, kazadan sonraki tedavi ve hastanede kalma süresi gibi kazaya ait bilgiler içermektedir. Üçüncü bölüm, kaza sırasındaki sorumluluk, korku, çaresizlik, tehlike, ölüm düşüncesi ve kontrol algısı gibi kaza geçirenin kaza anındaki değerlendirmelerini kapsamaktadır. Dördüncü bölüm 5 ölçeği kapsamaktadır. Kaza sonrası stres düzeyi, Olay Etki Ölçeği (Impact of Event Scale, IES) ile ölçülmüştür. Stresle başa çıkma stratejileri, Başaçıkma Yolları Ölçeği (Ways of Coping Questionnaire) ile değerlendirilmiştir. Algılanan gelişmeyi ölçmek için Strese Bağlı Gelişme Ölçeği (Stress Related Growth Scale, SRGS) kullanılmıştır. Sosyal destek ölçeği ile sosyal destek düzeyi ve katılımcıların depresyon skorları da Beck Depresyon Envanteri (Beck Depression Inventory, BDI) ile değerlendirilmiştir. Anketin dğer bölümleri kazaya ait bilgiler ve kaza sırasındaki değerlendirmeleri içermektedir. Sonuçlar, çalışma örnekleminin orta derecede strese sahip olduğunu göstermiştir. Stres düzeyi ile algılanan gelişme anlamlı olarak ilişkili bulunmuştur. Yaş, kaza sırasında algılanan tehdit ve çaresiz yaklaşım anlamlı olarak genel stres düzeyini yordamıştır. Kazayı yeniden yaşama semptom düzeyleri ele alındığında yaş, sosyal güvenceye sahip olma, depresyon düzeyi, algılanan tehdit ve çaresiz yaklaşım anlamlı yordayıcılar olarak bulunmuştur. Kaçınma semptom düzeyleri ele alındığında, eğitim düzeyi depresyon ve kaderci yaklaşım anlamlı yordayıcılar olarak bulunmuştur. Sosyal güvenceye sahip olmama algılanan tehdit, iyimser/problem odaklı ve kaderci yaklaşım ise

motorlu taşıt kazalarından sonra görülen algılanan gelişmenin anlamlı yordayıcıları olduğu bulunmuştur. Çalışmanın bulguları stres ve strese bağlı gelişim kapsamında tartışılmış, yetersiz yönler üzerinde durulmuş, klinik göstergeleri ile ileride yapılması uygun olabilecek çalışmalarla ilgili öneriler sunulmuştur.

Anahtar Kelimeler: Kaza, Travma Sonrası Stres, Başaçıkma, Gelişme

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Date: 09.07.2004   Signature:

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CHAPTER I

INTRODUCTION

This study investigated the predictors of psychological distress and stress related growth following Motor Vehicle Accidents. The predictors were conceptualised as pre-accident variables (e.g: socio-demographic variables), within-accident variables (e.g: cognitive appraisals of the accident and the characteristics of the accident) and post-accident variables (e.g: social support, coping strategies). After the presentation of general characteristics of Motor Vehicle Accidents and trauma, first the relevant literature will be examined. Subsequently, the study will be described and the results will be presented. Finally, the results will be discussed and directions for future research will be offered.

1.1. Motor Vehicle Accidents (MVAs)

Motor Vehicle Accidents (MVAs) are a serious cause of injury and death in Turkey as well as in the modern world. Despite improvements in road conditions, vehicle safety and driver education, from 1980, the increase of the number of the new motor vehicles and drivers is proportional with the number of MVAs. In 1980, the percentage of drivers was 5.9 % but in 1995, this number reached 15 %. Again in 1980, 312 of every 10.000 vehicles were involved in accidents and 5.2 of 10.000 persons have been wounded in these accidents. However, in 1995, 442 of every

10.000 vehicles were involved in accidents and 17 of 10.000 persons have been wounded (the Association of Turkey Prevention of Traffic Accidents-Operation Report, 1996).

MVAs are also common in America. Over 1 % (3.386.000 in 1995) of the Americans are involved in a serious traffic accident (Blanchard & Hickling, 1998) and nearly 42.000 die as a result of their injuries (National Center for Statistics, 1996).

In Australia, almost 600.000 MVAs are experienced per year and the survivors of them sustain serious injuries, some of them have permanent disabilities. It was found that more than 200 of every 100.000 Australians were hospitalised as a result of serious injuries sustained in MVAs in 1991 (Jawarowski, 1992).

MVAs cause a great deal of physical, moral and psychological injury and influence negatively community health, health services, workforce and quality of life. The survivors of MVAs sustain significant permanent disabilities that require rehabilitation, community care and ongoing treatment. In the case of permanent disability, the losses associated with MVAs can be extensive (Blanchard & Hickling, 1998).

Despite the knowledge that MVA is a serious problem and the potential cost and size has been studied extensively, the study of the psychological consequences of MVAs is usually neglected. The treatment and rehabilitation programs usually focus on physical injury rather than psychological results (Jawarowski, 1992).

1.2. Trauma and Traumatic Life Events

Traumatic life events are highly stressful situations. In DSM-IV, the main features of traumatic life events were described as serious threat to one's life and physical integrity, serious threat or possible harm to one's children, spouse, close relatives, friends, sudden destruction of one's home of community, seeing a serious injury or killing and learning about a serious threat or harm to a relative or friend (American Psychiatric Association, 1994). A traumatic event is defined by The American Psychiatric Association (1987) as one "that is outside the range of usual human experience" (p.250). According to Breslau and Davis (1987), a traumatic event should be defined as any event that produces symptoms of traumatic stress (intrusion, numbing and arousal). Norris (1990) defined traumatic events as the population of events involving "violent encounters with nature, technology or humankind". She also described that a violent event as one that is marked by sudden or extreme force. In this context, traumatic events comprise a larger population of life events such as fire, natural disasters, war, assault, traffic accidents etc. (Pillow, Zatura & Sandler, 1996). Exposure to traumatic event is a risk factor for somatic

(Segal, Hunter & Segal, 1976; Solomon, 1988), cognitive, social (Burgess & Holmstrom, 1974; Chodoff, 1962) and emotional problems (Waysman, Schwarzwald & Solomon, 2002).

Traumatic events lead to anxiety, fear, avoidance, withdrawal (Joseph, Williams & Yule, 1997) and include threats to social safety and psychological well-being (Palabıyıkoğlu, 2000).

According to Ursano, Fullerton and McCoughney (1995), traumatic events can either affect only one person (like a motor vehicle accident) or can affect a community (like an earthquake) and can be classified as natural (like a hurricane) or as manmade (like a war). In this perspective Motor Vehicle Accidents can be described as personal and manmade.

1.3. Motor Vehicle Accidents (MVAs) as Traumatic Life Events

Researchers are looking more closely at MVAs as a common cause of trauma. According to Norris (1992) MVAs are one of the most common experienced form of trauma. She found in one epidemiological study that MVAs are "the single most significant event" in terms of severity and frequency of trauma. According to a large scale survey (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995) MVAs are

the most frequent trauma for American males (25 % lifetime) and second most trauma for American females (13.8 %) (as cited in Blanchard & Hickling, 1998).

1.4. Psychological Distress Following Trauma

After traumatic experiences people have problems that they didn't have before the event. If the survivors of trauma do not get help for themselves and if the problems become severe, the survivors can begin to experience serious problems (Norris, 1992).

The trauma is often perceived not only as a threat against physical existence but also a violation of social and personal integrity, resulting in feelings of stress and vulnerability, as the survivors confront the possibility of their own mortality by the accident (Andersson & Dahlback, 1994; Miller, 1994).

Traumatised individuals are particularly vulnerable to a complex array of psychosocial problems and traumatic stress. According to Raphael and Meldrum (1994), no matter how mild, an MVA always represents a "traumatic encounter with death" (p.4). Even if there were no fatalities in the accident, survivors remember their potential vulnerability in the most confronting manner possible (Blanchard & Hickling, 1998).

It was reported that the common traumatic response to trauma is Posttraumatic Stress Disorder (Norris, 1997).

1.4.1. Posttraumatic Stress Disorder

Posttraumatic Stress Disorder (PTSD) is an enormous community health problem and approximately 14 % of the population suffer from this disorder at sometime in their life (Norris, 1992). PTSD is a potentially debilitating anxiety disorder and it includes avoidance behaviours, intrusive memories of trauma and heightened arousal. According to DSM-IV criteria, the diagnosis of PTSD comprises exposure to a traumatic event in which both of the following were present, "a) exposure or confrontation with a traumatic event accompanied by intense fear, helplessness or horror; b) persistent re-experiencing of the traumatic event, recurrent distressing dreams, acting or feeling as if the traumatic event were recurring, distress at exposure to events that symbolise, or resemble trauma; c) avoidance of thoughts or feelings associated with trauma, avoidance of activities or situations that arouse recollections of trauma, inability to recall important aspects of trauma, diminished, interested in previously significant activities, feelings of detachment of estrangement from others, restricted range of affect and a sense of foreshortened future, and d) symptoms of increased arousal like difficulty falling or staying asleep, irritability, difficulty concentrating, hypervigilance or exaggerated startle response. The duration of the disturbances must exceed 1 month, and it should be associated with

significant distress and impairment" (p.565) (American Psychiatric Association, 1994).

Epidemiological studies show that 60 % of the community are likely to be exposed to a traumatic event which could precipitate PTSD (Kessler, Sonnega & Bromet, 1995).

Despite the fact that PTSD is a result of trauma, survivors of traumatic events also have other psychological problems. According to a recent study, traumatised individuals can have depression, substance abuse, phobias, somatization, acute stress disorder, and other anxiety disorders. These problems can occur together with PTSD (Brady, 1997).

1.4.2. Traumatic Responses to MVAs

The literature has suggested that up to 70 % of people who experience a MVA will develop some type of traumatic response (Taylor & Koch, 1995).

In recent years MVAs have emerged as a major cause of psychiatric morbidity in general and of PTSD in particular (Mayou, Bryant & Duthie, 1993). Blanchard & Veazey (2001) reported that "there are many primary psychiatric disorders which result from MVAs. These are; PTSD, Acute Stress Disorder (ASD),

major depression and other mood disorders, and driving phobias and other anxiety disorders." (p. 143).

In a study, MVAs have been found to be the single leading cause of PTSD in the general population (Blanchard et al., 1993). Taylor & Koch (1995) found in their study that, MVAs survivors have been found to experience high levels of posttraumatic stress symptoms. They have also reported significantly high levels of chronic emotional disturbances, such as anxiety, anger, and depression. Norris (1992) found in her research that 12% of the MVAs survivors experienced full PTSD. In another research, 62 % of recent MVAs survivors experienced the elements of PTSD symptomatology even in the absence of significant injury (Kuch, Cox, Evans & Schulman, 1994).

Harvey & Bryant (1998) examined acute stress disorder and PTSD in the MVA population. They found that 13 % of participants met full criteria for acute stress disorder, and 20 % met all but one cluster of the DSM-IV criteria. The latter group didn't meet criteria for dissociation, re-experiencing or avoidance. At 6 months posttrauma, approximately 25 % of participants met full criteria for PTSD and 10 % presented with subclinical PTSD. Mayou, Ehlers & Bryant (2002) found in their study that, the prevalence of PTSD at three years following MVA was 11 %. Thus, the effects seem to be long lasting. MVAs survivors also experience problems other than PTSD. They often experience interpersonal conflict and social isolation

(Mayou, 1992). Medetsky and Parnes (1993) found that most survivors of MVAs report feelings of helplessness. Persistent anxiety in response to potential accident situations has been found among 30 % of motor vehicle accident survivors up to 6 years after their injuries (Mayou, Bryant & Duthrie, 1993). Stallard and Low (1993) in their study of teenagers who sustained only minor injuries in a minibus accident, found that anxiety and depression were significantly higher than normative levels for all of the participants.

In terms of persistence of the symptoms, Schalen, Hansson, Nordstrom and Nordstrom (1994) found that 60 % of individuals with serious injuries reported significant levels of anxiety up to 8 years after their accidents. 50 % continued to report depressive symptoms, and 20% indicated that suicidal thoughts were still common. The prevalence of hostility remained at 56 %, and more than 50 % considered that they had been changed completely by their accidents and had experienced a significant reduction in the quality of their life.

There are many models that explain the stress responses to trauma. The most common model of trauma reactions is Horowitz's Social Cognitive Model (Horowitz, Wilner, Kaltreider & Alvarez, 1980).

1.4.3. Horowitz's Social Cognitive Model of Posttraumatic Stress

This model emphasizes the effects of the trauma on the individual's life and the necessity of integration of traumatic event into the individual's past beliefs and cognitive schematas. Horowitz (1980) suggests that, "completion tendency" is necessary for the processing of information-related trauma. "Completion tendency" is a psychological requirement which exists for the integration of information related to trauma into the current existing cognitive schematas. Following a traumatic life event, a confusion reaction is experienced and then an "information overload" that comprises the memories, thoughts and images related to trauma which are discordant with the individual's existing current schematas. Since the information cannot be adapted with the existing current cognitive schematas psychological defensive mechanisms cut in and keep out the traumatic information for conscious awareness. These defensive mechanisms lead emotional deprivation and denial manifested by numbing. Initially, psychological defensive mechanisms maintain the information-related to trauma as unconscious but a time after completion tendency helps the integration of information to conscious awareness and incorporation of the information into the current models. Completion tendency maintains the information-related to trauma in active memory but through defensive mechanisms it is broken and intrudes into consciousness in the form of intrusive cognitions such as unwanted thoughts, flashbacks, nightmares and repetitive memories. As individual attempts to integrate the trauma information into current existing

schematas, intrusive memories become more and more. An oscillation arises as a consequence of the conflict between completion tendency and defensive mechanism. This manifests itself between the phases of intrusion and denial numbing. This oscillation lasts until the integration of information related to trauma into the "inner-schema of self". Consequently, the failure at the information processing and partial unsuccessful information processing lead to posttraumatic stress reactions (Horowitz, Wilner, Kaltreider & Alvarez, 1980).

The studies about traumatic events also examined gender differences. The results of these studies are mixed. Most studies indicated that women are more likely to develop PTSD than men are (e.g., Blanchard et al., 1997, Palinkas, Petterson, Russell & Downs, 1993). On the other hand, some studies haven't found any gender difference (e.g., Ehlers, Mayou & Bryant, 1998; Ross & Wonders, 1993; Sutker, Davis, Uddo & Ditta, 1995; Tobin & Ollenburger, 1996). Kessler et. al. (1995) found in their study that women are more likely than men to be exposed to traumatic events which are highly associated with PTSD, and more likely to develop PTSD upon exposure to such events.

In two studies (Blanchard et al., 1996; Ehlers et al., 1998) which are related to MVAs, it was found that women are more likely to develop PTSD although in the second study, this gender difference was found only at 3 months, and was found to have disappeared at the 1 year follow-up.

In another study which included only survivors of MVAs, Freedman, Gluck, Tuval-Mashiack, Brandes, Peri & Shalev (2002) examined gender differences in psychological responses to MVAs. They found no difference between men and women in terms of incidence of PTSD. But they also examined the subjects for generalized anxiety disorder and found that women had higher prevalence of generalized anxiety disorder than men did.

1.5. Stress and Coping

Stress and coping is one of the most frequently studied topics in psychology. In the literature, it has been shown that, most life events and traumatic life events are sources of stress and also stress was found to be associated with a lot of psychological problems. "…. chronic, severe and perceived stress may play an etiological role in the development of certain somatic diseases" (Kaplan & Sadock, 1998, p.412).

1.5.1. Stress Models

Stress models differ according to their definitions of stress. Stress is defined as a stimulus in stimulus based models, whereas it is defined as or a response in response-based models and finally as a transaction in interactional models.

1.5.1.1. Stimulus-based Models

In stimulus based models, stimuli or events are viewed as stressors and stress is viewed as a psychological demand that leads to personal tension. In these models it is suggested that environmental factors may lead to stress and the response of the individual to it, is considered as tension, strain or stress symptoms. According to these models if stress is in the form of clustering life events, it causes to stress symptoms (Matheny, Aycock, Pugh, Curlette, & Cannela, 1986). Stimulus based models do not give importance to the personal differences and the response side of the event.

1.5.1.2. Response-based Models

Response based models view stress as the response of the individual when he or she is exposed to external stimuli. In these models, physiological mobilization is important for handling stressful situations. These models suggest that, the responses of the individual are the consequences of the activation of the autonomic nervous system like sweating, frequent urination, an increase in heart rate and trembling. (Lazarus, 1993). According to Selye (1976), stress comprises neurological and hormonal reactions to stimuli and it disrupts homeostasis. In his theory, Selye focused on the General Adaptation Syndrome (GAS). "GAS emphasized that any

agent noxious to the tissues (a stressor) would produce more or less the same orchestrated physiological defense (stress reaction)" (as cited in Lazarus, 1993, p.4). GAS explains how stress effects the organism in three general stages. In the first stage, which was named as alarm, the organism is prepared to fight with the physical requirements of a stressor. In the second stage which is named as resistance, the organism resists against the present threat, and in the last stage which is named as exhaustion, the organism discontinues and this often ends in illness or death. According to Selye, these physiological reactions prepare the person to cope with imminent danger so they are adaptive (as cited in Lazarus, 1993). Fleeming, Baum & Singer, (1984) emphasized the limitations of Selye's theory. According to these researchers, the effect of stress is cumulative and when these effects are beyond one's capacity to cope, these effects result in various pathologies. Also, the response to various situations utilize the same physiological systems so that stress may be additive. Response based models do not give importance to the stimulus characteristics and these models also do not take into consideration individual differences like stimulus based models.

1.5.1.3. Interactional Models

Interactional models are most widely held model of stress (Lazarus, 1993). These models integrate stimuli-based and response-based models and in these models, personal differences are taken into consideration. One of these models

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which is the most accepted is the Cognitive Theory of Stress and Coping that was proposed by Folkman and Lazarus (1984).

1.5.1.3.1.Cognitive Theory of Stress and Coping

In this theory, stress is accepted as a relationship between the person and the environment (Folkman & Lazarus, 1985; Roth & Cohen, 1986). When the person perceives the requirements of a specific situation as exceeding resources, endangering well-being and health, he / she experiences stress. In this context, the meaning of the situation which is appraised by the individual is important for the stress. Fleeming, Baum & Singer (1984) suggested that, the events are stressful only if they are perceived as such by the individual. Because when a danger or threat is perceived, it is evaluated in the light of specific factors by the individual.

Cognitive theory of stress and coping conceptualises coping with stress as a dynamic process and emphasizes stress, coping and adaptation. In this theory, process is more important than the structure which is dependent on stable characteristics (Folkman & Lazarus, 1985) The stress process changes by reinterpretation of the situation and coping. Coping is an effort to manage stressful situation. Reinterpretation of the event, which is called appraisal and coping, are two important processes in stressful situations. These processes are likely to change according to personal and environmental factors.

According to Folkman and Lazarus (1985), the meaning of an event is specified by cognitive appraisal. Appraisal has two forms which are named primary and secondary appraisals. The primary appraisal involves the evaluation of the seriousness of the requirement in the stressful event and the secondary appraisal involves the evaluation of the capacity of the person's resources.

In primary appraisal, "the person evaluates whether he or she has anything at stake in this encounter" (Folkman, Lazarus, Gruen & DeLongis, 1986, p.572). Stress appraisals can be in three forms: harm/loss, threat or challenge (Folkman & Lazarus, 1985). When the damage has already been done, harm/loss is perceived. If there is a potential for harm/loss then threat is perceived. Negative emotions such as fear and anger are felt by the individual in the harm/loss or threat appraisals. On the other hand, positive emotions such as excitement are triggered by challenge appraisal. The individual feels that he/she can overcome the situational demands by using coping resources in the challenge appraisal so in this appraisal there is a potential for improvement and growth.

These three forms of appraisals are characterised with personal and environmental factors. The main components of personal factors are beliefs and commitments. Folkman (1984), stated that "Beliefs are preexisting notions about reality that serve as perceptual lens" (p.840). Control belief is one the major beliefs which is important in primary appraisal. Because the belief in control may influence

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the degree of the stress perceived by the individual. Commitments comprise ideals, values and specific goals of the individual. The values, ideals and goals may determine the extent to which it is appraised as a threat. Environmental factors such as threat or harm, familiarity/novelty, timing and nature influence the primary appraisals (Folkman, 1984).

The question "What can I do?" is associated with secondary appraisal. Because, secondary appraisal involves in the evaluation of coping resources and options to overcome threat, harm/loss and challenge (Folkman & Lazarus, 1985). Coping resources involve social, physical, psychological and material resources such as self-esteem, assertiveness, optimism, cognitive skills and sense of control. Appraisals of control related to situations, which is a personal resource, can affect the type of coping that the individual will use in a stressful situation (Folkman, 1984).

When an individual perceives a situation as stressful, the level of the stress increases depending on available coping resources. When these coping resources are insufficient, the level of stress increases again and the situation becomes more stressful (Folkman & Lazarus, 1985).

Primary and secondary appraisals are interdependent processes. For instance, when a person perceives a threat, he / she evaluates the adequacy of his/ her coping

resources. If he/she perceives his/her coping resources as adequate, the degree of threat perception may be lowered. However, if the coping resources are perceived as inadequate, the situation which is not threatening may become threatening (Folkman & Lazarus, 1985).

1.5.2. Coping

There are various definitions of coping. Coping was defined by Sarafino (1988) as a process by which people try to manage the perceived discrepancy between the demands and resources in a stressful event. Fleishman (1984) defined coping as cognitive or behavioural responses to reduce or eliminate psychological distress or stressful conditions (as cited in Valentiner, Holahan & Moos, 1994).

1.5.2.1. Coping With Stress

According to cognitive theory of stress and coping, coping is a major component of stress process. Folkman and Lazarus explained coping as "Coping refers to cognitive and behavioural efforts to master, reduce or tolerate the internal and/or external demands that are created by a stressful transaction" (as cited in Folkman, 1984, p.843). It can be understood from this definition that coping is independent of its outcomes. "That is, coping refers to the managements of

demands, regardless of the success of those efforts" and "The effectiveness of any given coping strategy is not inherent in the strategy" (Folkman, 1984, p.843).

Roth and Cohen (1986) stated that "avoidance" and "approach" are two general dimensions underlying coping. In other terms, coping consists of behavioural and cognitive efforts either toward or away from threat. Valentiner, Holahan & Moos (1994) proposed the classification of approach and avoidance coping into cognitive and behavioural subtypes as behavioural approach or avoidance and cognitive approach or avoidance.

According to Lazarus (1993), two major functions of coping are regulation of emotional states and management of the problem which is causing distress. The first function is referred to as emotion-focused coping and the second function is referred to as problem-focused coping. Emotion-focused coping is involved in controlling emotional responses of the individual to a stressor. In this kind of coping, the individual regulates his/ her emotional responses to the stressors using cognitive and behavioural strategies. For instance, the individual can use alcohol or drugs, engage in different activities, so he / she can distract his/ her attention from the problem These strategies are behavioural. On the other hand, as a cognitive strategy, the individual attempts to reinterpret the meaning of the stressor to reduce psychological distress. Folkman & Lazarus (1984) stated that if the individual

believes that he/ she can do nothing to change the stressful situation, he/ she tends to use emotion-focused coping.

In the other kind of coping called problem-focused coping, coping behaviours directly attempt to change the person-environment relationship. In other terms, this kind of coping is involved in managing and altering the problem through decision-making and problem solving.

It can be understood from this classification that emotion-focused coping leads to an internal change within the individual and problem –focused coping leads to an external change. It is important that cognitive appraisal plays an important role as a mediator in the coping process. "In short, many coping strategies can have an appraisal function in that they shape the meaning of an event, and conversely many forms of appraisal can have a coping function in that they help regulate distress" (Folkman, 1984, p.845).

Research indicates that both types of coping may be used in the same stressful situation (Folkman & Lazarus, 1980, 1985; Parkes, 1984; Patterson & McCubbin, 1987; Roth & Cohen, 1986). In a study (Folkman & Lazarus, 1980), 1300 stressful episodes were examined and it was reported that both problem-focused and emotion-focused coping were used simultaneously for 98 % of the stressful episodes. The type of coping which was used as an affected by the

appraisal of the situation. In the study, when the stressful situation was perceived as changeable an increase was reported in the use of problem-focused coping. When the perception of the stressful situation is related to stable factors or factors that are resistant to change, an increase was reported in the use of emotion-focused coping. Also, people use more confrontive coping, self-control and escape/avoidance when they feel that their self-esteem is in question and they accepted more responsibility. The use of problem solving coping increased when their self-esteem is not at stake. Fleeming, Baum & Singer (1984) stated that " Most people possess a repertoire of coping skills from which they select the most appropriate approach instead of trying to solve every problem in the same manner" (p. 944).

According to Folkman & Lazarus (1985), it can be adaptive to use problem-focused and emotion-focused coping at the same time, because problem-focused coping requires emotion regulation as well. Emotion-focused coping may serve as a facilitator for problem-focused coping by decreasing the level of stress. On the other hand, problem-focused actions can be hindered by emotion-focused coping because they immobilize the individual.

From the perspective of approach and avoidance, Roth and Cohen (1986), explained that avoidance results in a decrease in the level of stress and the individual can have the opportunity to process the threatening information gradually. So that, the stressfulness of the situation is lessened by this gradual processing and the

management of the negative emotions taken place. That is they became less exhausting for the individual. In the long-run, avoidance will facilitate approach coping. But, if avoidance results in emotional numbness, keeps the threatening information away from consciousness in disruptive ways, it turns out to be counterproductive. The researchers emphasize that approach coping has greatest benefits, because this kind of coping can change the stressful situations. However, these efforts can lead to an increase on the stress level as well. In stressful situations if the individual can not change the situation, approach coping can be non-productive and overwhelming. For adaptation, the coping types should be used simultaneously or the individual should alternate between two kinds of coping. If both of the coping types are used in a combination, it is productive but in an inflexible condition the use these two kinds of coping it is not adaptive (Compas, 1987).

To determine and to measure the coping strategies, Folkman and Lazarus developed and later revised Ways of Coping Questionnaire (WCQ). (Folkman et al., 1986). The aim of this measurement was to examine the cognitive and behavioural coping strategies which people use in stressful situations. The researchers conducted this study with a sample of university students. They administered the scale at three different times, in the stressful situations of college examination and at each stage they examined emotional states, stress levels and coping strategies. According to the results, seven scales which represent different coping strategies were obtained.

These scales were; problem-*focused coping* consisting of items such as "Trying to analyze the problem to understand it better", *Wishful thinking* consisted of items such as "wish that the situation would go away", *Blame of self* consisted of items such as "Criticise one's own self", *Emotional support* consisted of items such as "Talk to someone to find out more about the situation", *Minimizing Threat* consisted of items such as "making light of the situation", *Growth* consisted of items such as "Found new faith in life", *Help seeking / avoidance* consisted of items such as "avoid being with people in general" The first scale was related to problem focused coping and the others were related to emotion-focused coping strategies (Coyne, Aldwin & Lazarus, 1981).

The results of the study showed that, both emotion-focused and problem-focused coping were used at each of the 3 stages, by at least 94 % of the subjects. Researchers explained that two types of coping are used in stressful situations. In the study, the appraisals of both threat and challenge were reported at any stage of the stressor. It was also indicated that emotion-focused coping facilitated problem-focused coping.

Coping was explained as a complex process by Lazarus (1993) and an individual in stressful situations tries to cope through using a combination of coping strategies. The appraisals of the individual and the controllability perception of the stressor affect the coping process. According to the model proposed by Folkman and

Lazarus (1985), coping strategies may change from one stage of a stressor to another.

In later studies related with WCQ, the researchers reported slightly different subscales (Folkman & Lazarus, 1988). These subscales were: *Confrontive coping* involved in; aggressive efforts to change the stressful condition, *seeking social support* involved in seeking emotional and informational support; *escape-avoidance* involved in; wishful thinking and behavioural efforts to run away or avoid the stressor, *distancing type of coping* involved in; cognitive efforts to detach oneself and to minimize the significance of the stressful condition, *accepting responsibility* involved in; acknowledges one's own role and responsibility in the condition, *control of self* involved in; efforts to regulate one's feeling and action, *planful problem solving* involved an analytic approach to find a solution to the problem and deliberate problem-solving efforts to change the condition, *positive reappraisal* involved in; efforts to create positive meaning through personal growth. Distancing, seeking social support, positive reappraisal, self-controlling, accepting responsibility and escape avoidance can be characterized as emotion-focused coping; however efforts to change the stressful condition and to find a solution to the problem can be characterized as problem-focused coping (Folkman & Lazarus, 1986).

Folkman (1984) explained the three important features of cognitive theory of stress and coping. One of them is that coping is process oriented because of focusing

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on what a person thinks and does in facing a stressful situation. The second feature is that; coping process is contextual because of being influenced by an individual's appraisal of the real requirements in the stressful situation. Coping efforts and options are determined by both contextual and personal variables. The last important feature of coping is the impossibility of the priory assumption about what constitutes good or bad coping.

1.5.2.2. Coping and Perceived Control

According to cognitive theory of stress and coping, the beliefs of control do not always result in a decrease on the degree of stress. According to Coyne, Aldwin and Lazarus (1981), the beliefs of control as parts of cognitive appraisals are mediators of stress and adaptational benefits. Cognitive approach defines control as both a generalized and situational belief. In the context of a generalized belief; it is a belief about the extent to which one has control over the outcomes of significant events. In the context of the situational belief, it is a belief about the extent to which one has control under situations specific to a stressful condition (Folkman, 1984).

Compas, Banez, Malcarne and Worsham (1991) made a distinction among the three kinds of control appraisals. These are; *judgements of contingency* which reflect the individual's expectancies whether external, personal or factors not known result in specific benefits; *judgements of personal competence* which are the beliefs

about the ability to produce desired benefits (self-efficacy expectancies) and lastly *judgements of control* which are the belief of the individual's own ability to produce a specific benefit. Judgements of control included both judgements of contingency and the judgements of personal competence.

Perception of control over the stressor is an important factor in the coping process and it is a powerful predictor of coping. In a study (David & Suls, 1999) undesirability of event in terms of the effect on coping was examined in a sample of adult men. Results showed that the appraisal of control was a more powerful predictor than the severity of the problem (desirability / undesirability dimension) in predicting coping.

According to Valentiner et al., (1994), perception of control, play an important role as a moderator between psychological adjustment and coping. It was suggested that perception of control has an indirect effect on psychological well-being. Valentiner et al., (1994) proposed that perception of control affects the degree of symptoms through coping process.

Gamble (1994) found in his study that the perception of control predicted problem solving and seeking social support for a group of young adolescents among different appraisals. Also as a consequence of this study, a match between beliefs of control and coping strategies provided a decrease in the behavioural problems.

Parallel with these findings Compas, Malcarne and Fondacaro (1988) observed an increase in behavioural problems in the condition of a mismatch between perception of control and type of coping strategies.

1.5.2.3. Coping With Trauma

In the area of trauma, there are several studies which are about coping and appraisals. In one of these studies, Amir et al., (1997), investigated the coping strategies of PTSD patients and examined the relationship in the severity of the PTSD related intrusion and avoidance symptoms. The results indicated that; on the coping style of suppression (e.g. avoiding the problems) PTSD patients reported significantly higher scores than control group. On the coping style of replacement (e.g. trying to find a concrete solution), the PTSD patients reported lower scores than control group. Also, coping style of suppression was significantly and positively correlated with the intrusion and avoidance symptoms. Another finding of the study is that, the patients who used suppression more reported more avoidance and intrusion symptoms.

In another study, Brown, Mulhern and Joseph (2002) investigated the associations between incident-related stressors, locus of control, coping, and psychological distress in firefighters in Northern Ireland during the time of political violence. According to the results, among 248 male firefighters greater

psychological distress was associated with greater frequency of incident-related negative emotions, external locus of control, less task and emotion-focused coping and greater avoidance coping. Moreover, the frequency of exposure to incident-related stressors moderated the association between locus of control and psychological distress. On the other hand, avoidance coping style mediated the relationship between locus of control and psychological distress. Most of the explained variance in psychological distress was explained by avoidance coping style.

Kanninen, Punamaki and Qouta (2002) examined how trauma specific appraisals and coping efforts mediate between traumatic experiences, acuteness of trauma and length of imprisonment and posttraumatic stress symptoms among 103 Palestinian former political prisoners. According to the results; the acuteness of trauma (time since release), appraisal of prison experience as harmful and involving loss, and use of both emotion and problem-focused coping efforts were associated with high levels of posttraumatic stress symptoms. Torture and ill-treatment had a direct association with intrusion and recent release from prison with avoidance symptoms. The findings indicated that, problem-focused coping was associated with a low level of posttraumatic stress symptoms in the short run whereas emotion-focused coping was associated with a low level of posttraumatic stress symptoms in the long run

Esposito and Clum (2002) examined the relationship between childhood abuse, social support and problem solving appraisal within a juvenile delinquent sample. The researchers used hierarchical regression analyses to assess whether childhood abuse, social support and problem solving appraisal were independently predictive of suicidality and further whether problem solving appraisal and social support moderated the childhood abuse-suicidality relationship. In the study childhood sexual abuse was found to be an independent predictor of suicidal ideation and behaviour. Also, both problem-solving confidence and social support moderated the relationship between childhood abuse and suicidal ideation.

In the context of Motor Vehicle Accidents (MVAs), Bryant and Harvey (1994) studied predictors of posttraumatic intrusive symptomatology in 56 MVA survivors 12 months after their MVA. They used Coping Style Questionnaire (CSQ) to measure coping response, Impact of Event Scale (IES) to measure posttraumatic stress reactions and conducted a stepwise multiple regression. The variables which entered into the equation; perceived severity of trauma, degree of injury sustained (ISS), compensation status, avoidance scale of CSQ and the IES-intrusion scale as the dependent variable. All factors except injury severity were correlated with IES intrusion scores. Results indicated that 20 % of the MVA survivors reported significant levels of intrusive and avoidance symptomatology. In the study, avoidant coping style and compensation were the best predictors of IES–Intrusion scores, accounting for 41 % of the variance. Epstein (1993) reported that identification of

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PTSD in MVA survivors is impeded because avoidant responses cloak symptoms (as cited in Bryant & Harvey, 1994). Schwartz & Kowalski (1992) stated that avoidance is associated with poor help-seeking behaviour (as cited in Bryant & Harvey, 1994). According to Horowitz (1986), habituation to trauma–related material facilitates posttraumatic adjustment purportedly (as cited in Bryant & Harvey, 1994). The researchers suggested one possible interpretation of the present findings. It was suggested that minimising avoidance behaviour following a MVA may facilitate adjustment to the feared stimuli, and thereby result in reduced intrusive symptoms.

The same researchers assessed 114 MVA victims within two weeks of hospital admission. They used Impact of Events Scale to measure posttraumatic symptoms. Results showed that, approximately one third of patients reported high levels of posttraumatic stress and anxiety. Fear of the accident and recent stressful events best predicted avoidance symptoms. On the other hand, fear of the accident and absence of head injury predicted intrusion symptoms best (Bryant & Harvey, 1996).

1.5.2.4. Social Support as a Coping Resource

Social support is one of the coping resources that are used against stress. "Social support is usually defined as the existence or the availability of people on

whom we can rely, people who let us know that they care about, value and love us"
(Sarason et al., 1983, p.127).

Kaplan proposed that social support plays a major role in the maintenance of the individual's physical and psychological integrity (as cited in Sarason et. al., 1983). According to Wortman (1984), social support protects the individual from psychological distress. A partner or a spouse, family members, children, friends, social organizations or co-workers can provide social support (Sarafino, 1998). Vaillant reported that social support which come from the family members has positive correlation with lack of psychiatric disorders and positive adult adjustment (as cited in Sarason et al., 1983). Pittman & Lloyd (1997) found that social support that is coming from friends and relatives was positively correlated with the quality of family life and life satisfaction.

In a classification which was made by House (1981), social support was defined as "an interpersonal transaction" and comprises of four components. These components are; *emotional concern* which includes emotions such as love, empathy, trust; *Instrumental aid* which provides services or goods and includes loans of money, helping with chores, *Information* such as useful information and advice, and lastly *appraisal* which is related to information about to self –evaluation (as cited in Tilden & Weinert, 1987).

Two main factors of social support are degree of satisfaction with the support and perception of adequate number of others (Sarason et al., 1983). Sarason et al. (1983) examined the perceived level of social support and effectiveness of social support. Results indicated that; people who had high level of social support are more optimistic. Also, the level and satisfaction with social support negatively correlated with depression and anxiety.

Cohen and Wills (1985) suggested two models which explains the relationship between well-being and social support. According to the first model, which is labelled as "Buffering Model", social support is related to well-being for individuals under stress. In this model, the individual is protected from the effects of the stress by support. Support either prevents a stress appraisal response through intervening between the stressful event and stress reaction or reduces the stress reaction through intervening between the experience of stress and the onset of pathological outcome. The second model is the "Main Effect Model". This model suggests that, large social networks and environment provide positive experiences to individual and so that this type of social support could be related to overall well-being.

1.5.2.5. Coping and Gender

In the literature, it was suggested that men tend to use problem-focused coping style in stressful conditions whereas women tend to use emotion-focused coping style (Karancı, Alkan, Akşit, Sucuoğlu & Balta, 1999).

Ptacek, Smith and Zanas (1992) explain gender differences in coping styles on the basis of two main hypotheses. These hypotheses are socialization and role-constraint hypotheses.

In the socialization hypothesis, it is stated that; men and women have different sex role stereotypes and expectations, so they are socialized to cope differently with similar stressful situations. According to this explanation, men are socialized to behave by using planning and direct action. However, women are socialized to manage the stressful situations through seeking support from others and emotional expressiveness (Ben-zur & Zeinder, 1996).

It was stated by Ptacek and colleagues (1992) that;

"The investigation of possible gender difference in coping, is important not only because differences may be an important consequence of gender linked socialization experiences, but also because differences in coping may help mediate sex differences that have been shown to exist in the incidence of various stress related physical and psychological disorders" (p.748).

Ptacek et. al. (1992) examined gender differences in seven coping strategies. Results showed that there are differences among women and men in appraisal and coping. Women reported more appraisals of threat or loss, more self-blaming and using more coping strategies. Men reported more expectancy of events to occur, more challenge, more effectiveness in coping and more perceived control over the outcome. Women were found to use more emotional focused coping (wishful thinking and avoidance). Men were found to use problem-focused coping styles more than women do.

In the role-constraint hypothesis, it is stated that, women and men have different social roles, these social roles encounter them with different types of stressors. If the stressors are same, it is suggested that men and women are expected to use same coping strategies. The differences of the situations cause the gender differences in coping (Ben-zur & Zeidner, 1996).

Folkman and Lazarus (1986) explain gender differences with vulnerability of women to depression and anxiety responses. It is suggested that, when people have high scores on depression, they have more stakes in stressful conditions and they use more emotion-focused coping styles such as self-control, escape/avoidance. But the coping styles and appraisals of these people are not all negative. According to Coyne et al. (1981) people with depression evaluate the stressful conditions as more

threatening and harmful, so they use avoidance, seeking social support and wishful thinking more than people who are not depressive.

In a study which examined the differences between coping behaviours of men and women (Hamilton & Fagot, 1988), for problem solving behaviour, no gender differences were found, but more overall distress was reported by women.

Şahin & Durak (1995) in their study found no gender difference for frequency of emotion-focused and problem-solving coping styles in a sample of university students. In the study, women reported using more seeking social support coping than men did.

In another research (Oral, 1994) gender difference in coping in a high school students sample was reported. Male students reported more optimistic and withdrawal strategies than female students. Female students reported more helpless and social support seeking than male students did.

Bruder-Mattson & Hovanitz (1990) investigated the relationship between attribution styles and coping and their interaction with depression. According to the results, stable and global attributions for positive life events were found to be correlated with problem-focused coping style in men. However, internal, stable and global attributions for negative life events were found to be correlated with

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emotional-focused coping style. But in depression coping accounted for more variance than the attributions. Also a positive correlation between escape/avoidance coping style and depression was found. On the other hand, a negative correlation between problem-focused coping and depression was found.

The knowledge on different coping strategies may help to clarify gender differences in stress symptoms which can be seen in traumatic situations. Also understanding the relationship between gender and coping may help to guide the development of preventive interventions. Preventive interventions could be designed to increase the coping resources according to gender differences.

In a meta-analysis of risk factors for PTSD in trauma-exposed adults which was conducted by Brewin, Andrews & Valentine (2000), trauma severity, gender and social support were shown to have the strongest effect in all risk factors (as cited in Brewin & Holmes, 2003).

1.6. Risk Factors for MVAs-Related Posttraumatic Stress

Recent studies have described variables that have predictive value when trying to determine posttraumatic stress after MVAs.

Blanchard & Hickling (1998) reported that risk factors for posttraumatic stress following MVAs can be directed at three sets of variables:

a) Pre-accident variables which is characteristics about the survivor that were present before the MVA such as ability to cope in reaction to previous traumatic events, the presence of a pre-accident mental-health problem,

b) Accident-related variables such as loss of significant others, amount of physical injury, potential threat to life, fear of dying,

c) Post-accident variables such as the level of social support from friends and family, the rate of physical recovery from injury and the level of active reengagement in both social activities and work (p.98)

Butler & Moffic (1999) identified risk factors for stress disorders related to MVAs as pre-existing personality characteristics, prior traumatic experiences, history of psychiatric disorders, accident severity, fatalities, a significant threat to life, regardless of actual injury and ongoing litigation.

Richmond and Kauder (2000) assessed predictors of psychological distress in 109 survivors following serious physical injury during acute hospitalization and at 3 months postdischarge. They used IES to assess current levels of posttraumatic psychological distress. In this study, the results showed that, approximately 32 % of individuals experienced high levels of distress in-hospital, and at 3 months

postdischarge this increased to 49 %. According to the regression analysis, the variance in posttraumatic psychological distress at 3 months postdischarge was predicted by greater psychological distress during hospitalization, a positive drug/alcohol screen on hospital admission, younger age and the lack of anticipating problems returning to normal life activities.

In another research, Koren, Arnon & Klein (1999) used a prospective 1 year follow-up study, carried out on 74 injured MVAs victims and a comparison group of 19 patients who were hospitalized for elective orthopedic surgery. According to the results, 32 % of the MVAs victims, but none of the 19 comparison subjects, met DSM-III-R criteria for PTSD at 1 year. MVAs victims who developed PTSD had higher levels of premorbid and comorbid psychopathology. Existence of posttraumatic symptoms after the MVA was a better predictor of later PTSD than was accident or injury severity.

Harvey and Bryant (1999) assessed 62 MVAs victims within 2-28 days and found that 16% of the victims met criteria for acute stress disorder. Four variables accounted for 61 % of the variance in acute stress disorder severity: Beck Depression Inventory score at time of assessment, history of prior psychiatric treatment, history of prior PTSD and history of prior MVA.

Jeavons, Greenwood & Horne (2000) assessed the relationship between demographic variables, details of the accident and cognitions about the accident recorded soon afterwards and the degree of psychological trauma at 3 and 6 months later. General Health Questionnaire and Impact of Event Scale (IES) were used to assess the psychological trauma. Results indicated that, initial cognitions such as perceived threat to life, rather than demographic or accident variables had the strong relationships to subsequent trauma. The demographic variables namely, age, family history of psychiatric treatment, presence of relationship, existence of concurrent stress and having experienced a prior traumatic incident showed no significant relationships with any trauma measures. A personal history of psychiatric treatment indicated significant relationships with 6-month trauma measures, and women had significantly higher scores on the 6-month IES, although it was only a moderate degree of correlation. The accident variables of accident severity, whether or not admitted to hospital, number of days of admission, doctor's ratings of injury severity, numbers of others injured, injury of others known to them and loss of consciousness did not indicate any significant correlation with trauma measures. Self-ratings of injury had a modest relationship to 6-month IES and injury of others not known to the respondent. In the study, the accident cognition variables as a group showed the strongest correlations with the trauma measures. Strong significant correlations were found with perceived threat, distress at the accident and being in the hospital and thinking you might die or be injured at the moment of the accident.

Blanchard, Hickling, Taylor, Loos & Gerardi (1994), assessed 50 survivors of MVAs who has sought medical attention after their accidents for possible psychological morbidity as a result of the accident. They also assessed forty age, gender-matched controls with the same instruments. Results showed that 46 % of the MVAs survivors met the criteria for current PTSD as a result of the accident while 20 % showed a sub-syndromal version (reexperiencing symptom cluster plus either the avoidance/numbing cluster or the over-arousal cluster) of PTSD. MVA survivors who met the criteria for PTSD or sub-syndromal PTSD were significantly more likely to have experienced previous trauma other than a serious MVA, and were more likely to have previously met the criteria for PTSD as a result of trauma. 48 % of MVA survivors who met the criteria for current PTSD also met the criteria for current major depression. Significantly more current MVAs related PTSD had previous major depressive episodes.

In another study, Bryant & Harvey (1999), compared the acute stress disorder and posttraumatic stress disorder symptom profiles in MVA survivors who had a mild traumatic brain injury or no traumatic brain injury. They assessed the survivors within 1 month of their trauma for acute stress disorder and reassessed them at 6 months after the trauma for PTSD. Results showed that, mild traumatic brain injury group reported intrusive memories and fear and helplessness in response to trauma less frequently than non-traumatic brain injury group. In this context, these findings show that, impaired consciousness at the time of a trauma may

decrease the frequency of traumatic memories in the 1 month after the trauma. Also, the Mild traumatic brain injury group doesn't result in a different profile of long-term PTSD.

Blanchard, Hickling, Taylor, Loos, Forneris & Jaccard (1996) examined 158 MVA survivors within 1 to 4 months of their MVAs and they found that 39% of the subjects met DSM-III-R criteria for PTSD. In their study, in the development of full PTSD, degree of injury, prior PTSD, prior mood disorder, and fear of dying in the MVA were all predictors of developing PTSD. Litigation accounted for over 6 % of the variance. On the other hand, the attribution of responsibility for the accident to road conditions yielded a low level, negative correlation with posttraumatic stress symptoms.

Delahanty, Raimonde, Spoonster and Cullado (2002) examined the relationship between prior traumatic history of traumatic events, life threat and injury severity experienced during a motor vehicle accident and assessed PTSD 1 month after the accident. In addition, they also examined initial urinary cortisol levels after the accident as a possible mediator of this relationship. They found that, victims who met posttraumatic stress disorder diagnostic criteria, reported more prior traumatic events, and significantly greater life threat despite receiving significantly lower injury severity scores than victims who did not develop PTSD. Cortisol levels mediated the relationship between injury severity scores and PTSD

symptoms and prior trauma history and PTSD symptoms. The investigators suggest that, cortisol levels in the aftermath of a trauma may serve as a mechanism through which various factors may increase risk for PTSD.

The characteristics of the individual prior to the trauma are important for the development of PTSD (Marmar, Weiss, Schlenger, Fairbank, Jordan, Kulka & Hough (1994). One of the personality dimensions which has been identified as a precursor to psychological distress and indicative of negative emotional stability is neuroticism. (Watson & Clark, 1984). Eberly, Harkness & Engdahl (1991) have suggested that repeated exposure to trauma may also increase a person's level of neuroticism.

Holeva and Tarrier (2001) investigated the contribution of personality and peritraumatic dissociation in the prediction of PTSD among 265 MVA survivors within 2-4 weeks of the accident and again between 4 and 6 months. According to the results, neuroticism, psychoticism and peritraumatic dissociation were significantly correlated with posttraumatic symptoms. In the study, personality dimensions were the only independent and significant predictors of subsequent PTSD in logistic regression but peritraumatic dissociation was not found to be an independent predictor of PTSD.

Davidson, Van Dyke and Agar-Wilson (2000) assessed the effects of MVAs on drivers' and passengers' responsibility attribution, and the level of psychological distress and well-being. There were 221 drivers and 100 passengers in the sample. 47 % of the passengers reported that they were related to driver, 53 % reported that they were not related to the driver. The researchers categorized the drivers according to their attribution of responsibility for their accident, with a resultant 20 % perceiving themselves to be at fault, 80 % perceiving themselves not to be at fault. Results indicated that, there was a significant decrease in reported well-being for both passenger and driver-victims following the MVA. Drivers who didn't accept responsibility for their accidents showed significantly greater distress than those who accepted the responsibility did. According to path analysis it was found that blaming others for the accident was associated with higher level of psychological distress and a lower level of psychological well-being for both drivers and passengers. Drivers who accepted responsibility for the accident showed lower levels of psychological distress and a higher level of psychological well being.

In a study (Bulman & Wortman, 1977) it was found that paralysed accident survivors who engaged in self-blame for their misfortune appeared to adapt more successfully to their paralysis (as cited in Ho, Davidson, Van Dyke & Agar-Wilson, 2000). The researchers proposed that "For the driver of a vehicle involved in an MVA, behavioural self-blame reflects the reestablishment of the meaning in one's life, through control- related attributions for the accident. Assuming or knowing that

one had some responsibility for the accident may provide a buffer against long-term distress because it suggests that one had some control over what happened" (Davidson, Van Dyke & Agar-Wilson ,2000, p. 35)

As studies showed that, MVA survivors have considerably psychological distress which has various predictors that can be pre-accident, within accident or post-accident factors.

1.7. Stress Related Growth

Recently, many researchers suggest that undesirable life events like traumatic events can provide growth or positive changes in quality of life, in values and self- views (Collins, Taylor & Skokan, 1990; Park, Cohen & Murch, 1996) and positive outcomes following a stressful life event is named as stress related growth in the literature. Tedeschi and Calhoun (1995) stated that many survivors of traumatic events, besides stress also show positive outcomes in their lives following a traumatic life event. In the condition of growth people report that they appreciate their life, their families, friends more, that they have new values and perspectives. Sometimes their religious faith can grow.

Schaefer & Moos (1992) explained three kinds of positive outcomes that can develop after a negative life event:

a) an increase in social resources (e.g. better relationship with family and friends)

b) an increase in personal resources (e.g. assertiveness, empathy, self-understanding)

c) the development of new coping resources (e.g. to seek help when needed and regulate affect) (as cited in Tedeschi, Park & Calhoun, 1998).

According to Tedeschi and Calhoun (1995) in most studies 50-60% of the sample reports some positive changes and the four most common areas of growth are reported as empathy, life philosophy, positive changes in self and in relationships.

On the other hand, some victims of rape report the benefit of valuing themselves more, but indicate no change in useful behaviours or interpersonal skills (Burt & Katz, 1987). It was proposed by Schaefer and Moos (1992) that, growth is determined by coping responses, personal characteristics such as hardiness, extraversion and cognitive appraisal of the event such as challenge or threat. The consequence of the interrelation of these determinants is such that; each one affects and is affected by the other determinants in leading to stress-related growth (as cited in Tedeschi et al.,1998).

Calhoun and Tedeschi (1998) proposed that for posttraumatic growth to occur:

a) The traumatic event(s) must be severe enough to produce significant reconsideration of previously held assumptions; b) the trauma survivor must find some ways of managing initial debilitating distress; c) disengagement from previous goals and assumptions must occur; d) the distress must persist for some time; e) and that supportive others can aid in posttraumatic growth by providing a way to craft narratives about the changes that have occurred, and by offering perspectives that can be integrated into schema change. People who are extraverted seem to be somewhat more likely to be able to engage in this process and report posttraumatic growth (p.16).

1.7.1. Stress Related Growth and Traumatic Events

In the literature some of the research show that women reported more perceived growth than men did (Park et al., 1996; Tedeschi & Calhoun, 1996). On the other hand , in another study (Polatinsky & Esprey, 2000) total growth scores were found higher in women than men but the differences were not statistically significant.

In some studies it was found that there is a significant relationship between growth and perceived life threat. Survivors of a plane crash who had perceived benefit a

few week after the crash, reported less posttraumatic symptoms than those who did not perceive benefit after the crash. Survivors who had high level of perceived life threat had the most mental health recovery (McMillen et al.,1997).

People who have personality characteristics of optimism and hope are more likely to report experiencing growth in response to stress. This relationship has been reported in studies of people experiencing stressful situations (e.g., Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1996)

It was reported that, the relationships between stress-related growth and other personal characteristics, include spirituality or religiousness (e.g., Aldwin, Sutton, & Lachman, 1996; Park et al., 1996), religious participation (Tedeschi & Calhoun, 1996), and extroversion (Tedeschi & Calhoun, 1996). Women report that they experience more stress-related growth than men do (e.g., Park et al., 1996; Tedeschi & Calhoun, 1996), however this finding is not supported by other studies (e.g., Hettler & Cohen, 1997).

Studies show that social resources play an important role in predicting growth. Individuals who confront stressful situations may be more likely to experience stress-related growth if they possess relatively strong social resources and current life situations. For example, Park et al. (1996) found that social support,

particularly individuals' satisfaction with their support, was moderately positively related to stress-related growth reports.

In the context of stress related growth and coping, it was suggested that increased appraisal of the stressfulness of an event is related to increased reports of stress-related growth (Tedeschi & Calhoun, 1996; Park et al., 1996).

According to most proposed models, more stressful situations provide more opportunities to experience growth because stressful situations disrupt a person's global meaning system and thus lead to a search for meaning (Tedeschi & Calhoun, 1995; Janoff-Bulman, 1992).

In a study of college students with stressful circumstances, several coping activities, including positive reinterpretation, acceptance and emotional social support related to higher reports of stress-related growth (Park et al., 1996). In another longitudinal study related to community-dwelling adults, it was found that reports of dealing with a low point in their lives by using instrumental, problem-focused coping were positively related to experiencing positive outcomes, whereas using escape was negatively related to experiencing positive outcomes (Aldwin et al., 1996). Religious coping may be particularly related to growth and thriving. Several studies have found that religious coping is strongly related to stress-related growth (e.g., Park et al., 1996). In a study of undergraduate women it was found that

religious coping with a recent stressful event was related to stress-related growth for Protestant and nonaffiliated women but not for Catholic women (Park, 1997).

1.8. Aims of the Study

The aims of the present study were to:

(1) Investigate the general level of posttraumatic stress symptoms as well as intrusion and avoidance symptom levels among survivors of Motor Vehicle Accidents.

(2) Evaluate the dimensionality of stress related growth scale and to examine the domains of growth experienced by MVA survivors.

(3) Analyse the expected relationship between distress level and perceived growth.

(4) Investigate the predictors of post-traumatic stress symptoms (intrusion-avoidance) and stress related growth. The predictors were conceptualised as pre-accident, accident and post-accident factors. The pre-accident factors were demographic variables such as age, education and employment status. The accident related factors were cognitive appraisals of the accident (such as perceived level of responsibility, fear experienced during the accident, helplessness, danger, thinking that he / she will die or another person will die in the accident, sense of control, injury severity) and accident related objective information (such as the person's status in the accident as driver and non-driver, existence of injured or lost people or

not, having taken alcohol or not, the consequences of treatment following the accident; totally recovered, continuation of physical and psychological complaints, the place and the subjective severity of the accident). The post accident risk factors were social support and coping strategies. It was expected that each group of factors would predict post-accident adjustment, it was hypothesised that coping and social support would still account for variance in outcomes after controlling for pre-accident and accident factors.

This study aimed to investigate MVA survivors' stress symptoms within the Cognitive Theory of Stress and Coping (Folkman & Lazarus, 1985). In the context of this theory, we can conceptualise the motor vehicle accident as a stressor which requires adaptation thus activating the primary appraisal process. Then, survivors of MVAs will evaluate the accident to overcome their psychological distress using the secondary appraisal process. Through this process survivors will use specific coping strategies to cope with the stress encountered. It was expected that both the primary appraisal and coping strategies would affect the level of distress and stress-related growth.

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CHAPTER II

METHOD

2.1. Sample

The sample consisted of 200 adults involved in a Motor Vehicle Accident (MVA) within 6-months prior to data collection. The age range was 18 to 65 (mean age = 33.24). They were all involved in a 29 % of the subjects (n= 58) were female and 71 % were male (n= 142). Exclusion criteria included (a) having traumatic brain injury, (b) loss of consciousness at the time of the accident, (c) having posttraumatic amnesia. Sixty three percent of the participants (n= 126) were drivers, 28 % (n= 56) were passengers and 9 % (n= 18) were pedestrians when the MVA occurred. 52.5 % (n=105) of the subjects had no hospital admission following the MVA. The minimum length of admission was 0.5 days whereas the maximum length of admission was 105 days. Injuries were self -rated as no injury by 52.5 % (n =105), very mild by 7,5 % (n = 15), mild by 9,5 % (n=19), moderate by 13 % (n=26), severe by 7, 5 % (n=15) and very severe by 10 % (n=20). 68.5 % (n= 137) of the accidents were inner city where as 31.5 % (n=63) of the accidents were inter-city. 76.5 % (n= 153) of the sample had social security entitlement whereas 23.5 % (n=

47) had no social security entitlement. Socio-demographic characteristics and information related to the accident are presented in Table 1.

Table 1. Socio-demographic and Accidental Variables of the Sample

Variable	Percentage (n)	Mean (SD)	Range
Gender			
Male	71 (142)		
Female	29 (58)		
Age		33.4 (10.42)	18-65
Employment Status			
Housewife	9.5 (19)		
Student	11 (22)		
Retired	6.5 (13)		
Worker	37.5 (75)		
Civil servant	18 (36)		
Tradesman	17.5 (35)		
Marital Status			
Married	53.5 (107)		
Single	35 (70)		
Widowed	3.5 (7)		
Fiance / engaged to be married	5.5 (11)		
Divorced	2.5 (5)		
Education (years)		12.21(3.64)	1-17
The number of previous accident		1.77 (2.32)	(0-20)
Having social security entitlement			
Yes	76.5 (153)		
No	23.5 (47)		

(Table 1. Cont.)

Variable	Percentage (n)		Mean (SD)	Range
The status of the survivor				
Driver	63	(126)		
Passenger	28	(56)		
Pedestrian	9	(18)		
Perceived injury severity				
No injury	52.5	(105)		
Very mild injury	7.5	(15)		
Mild injury	9.5	(19)		
Moderate injury	13	(26)		
Severe injury	7.5	(15)		
Very severe injury	10	(20)		
Duration of hospitalization			5.01 (11.99)	0-105
Existence of injury to another person				
Yes	36	(71)		
No	64	(128)		
Existence of death in the accident				
Yes	3	(6)		
No	97	(194)		
Existence of death of friend / relative				
Yes	3	(6)		
No	97	(194)		
Having taken alcohol				
Yes	7	(14)		
No	93	(186)		
The result of treatment after accident				
No treatment	52	(104)		
Totally recovered	36	(72)		
Continuance of complaints	10	(20)		
Become disabled	2	(4)		

2.2 Materials

Data was collected by a questionnaire which consisted of four parts (see appendix A). The first part covered socio-demographic variables such as age, gender, marital status, education, employment status, having social security entitlement or not and the number of previous accidents.

The second part explored variables related to the accident such as the status of the survivor as driver, passenger or pedestrian, existence of another injury or death, having taken alcohol or not, treatment and complaints after the accident, duration of hospitalization after the accident.

The third part focused on the subject's accident related appraisals such as perceived level of responsibility, fear, helplessness, danger, thinking of death to oneself or others, sense of control, perceived level of injury severity. To assess accident related appraisals participants were asked to rate these variables on a likert-scale, ranging from 1 (not at all) to 5 (extremely).

The fourth part contained five scales which are Impact of Event Scale (IES), Ways of Coping Questionnaire (WCQ), Stress Related Growth Scale (SRGS), Social Support Scale and Beck Depression Inventory (BDI). These scales were presented in a random order to control for possible order effect. These scales are commonly used

in studies related to traumatic life events. In the following section detailed information on these scales are presented separately.

2.2.1.Impact of Event Scale (IES)

To measure current subjective distress reflecting intrusion and avoidance, The Impact of Event Scale (IES; Horowitz, Wilner & Alvarez, 1979) was used. The IES which is one of the earliest self-report measures of posttraumatic stress is widely used in trauma research. It has been used in several studies for example, in natural disasters (e.g: Güneş, 2001; Johnsen, Eid, Lovstad & Michelsen,1997), with assault victims (e.g. Elliott & Briere, 1995) and also with MVA survivors (e.g. Bryant & Harvey, 1996). It was developed to reflect Horowitz's (1976) theory of stress response (as cited in Joseph, 2000). This scale consists of 15 items which describes episodes of distress by people who encountered a traumatic life event. Participants are asked to rate posttraumatic symptoms on a 4-point likert scale according to how often each has occurred in the last 7 days, on a marked 0 (not at all), 1 (rarely), 3 (sometimes) and 5 (often). Seven items evaluate intrusion which refers to emotional and cognitive symptoms of traumatic event (e.g: unwanted thoughts of traumatic event) and eight items evaluate avoidance which refers to avoidance from any reminders of trauma (e.g: not want to go the place where the trauma occurred) yielding two subscale scores. The total score can have a range of 0 to 75, also intrusion and avoidance items can have a range of 0-35 with 7 items,

and 0-40 with 8 items. (Horowitz, Wilner & Alvarez, 1979). Horowitz (1982) identified thresholds according to IES total score as low, < 8.5.; medium, 8.6 to 19.0; and high, > 19. However, these thresholds are not used as an indicator of any clinical diagnosis (as cited in Joseph, 2000). According to Joseph (2000), these cut off points are arbitrary.

Acceptable reliability for both the intrusion and avoidance subscales was reported (Cronbach alpha = .79 (for intrusion) . 82 (for avoidance)) in a sample of 66 "stress response syndrome" outpatients. The correlation between subscales was .42 and test-retest reliability with coefficients of .87 (intrusion) and .79 (avoidance) and .87 (total) was satisfactory (Horowitz et al.1979).

Shalev (1992), in a study administered the IES to survivors of terrorist attacks three times, and found the internal reliability of only total IES at each time as .78, .73 and .88, respectively. In another study with South African police, Kopel and Friedman (1997) found the reliabilities to be .79 (for intrusion) and .69 (for avoidance) and . 79 (for total IES). Robbins and Hunt (1996) in their study with Second World War veterans found the internal reliability of intrusion and avoidance subscales to be .86 and .73, respectively.

IES has been shown to correlate with PTSD (Zilberg, Weiss & Horowitz, 1982). Shalev, Freedman, Peri, Brandes and Shalev (1997) compared IES and

Structured Clinical Interview which is widely used to measure PTSD and found no differences between the two questionnaires in the context of predictability of PTSD.

Weathers and Litz (1994) compared IES with Clinician-Administered PTSD Scale (CAPS) and found that scores on the IES are associated with scores on measures of PTSD (as cited in Joseph, 2000).

According to Joseph (2000), The IES can be used in research with a variety of traumatic events, so it seems to be the most useful. Also, in several studies related to motor vehicle accidents IES was used to assess the posttraumatic stress symptoms as psychological distress (e.g: Bryant & Harvey, 1994; Bryant & Harvey, 1996; Butler & Moffic, 1999; Delahanty, Raimonde, Spoonster & Cullado, 2002; Freedman, Gluck, Tuval-Mashiach, Brandes, Peri & Shalev; Hickling & Blanchard, 1997; Ho, Davidson, Van Dyke & Agar-Wilson ,2000; Jeavons, Greenwood & Horne, 2000; Richmond & Kauder, 2000).

Because of the common use of IES reliably and validly in several studies related to MVAs and its continuos score which is suitable for correlational studies and also because the aim in the present study was to assess the current level of subjective distress rather than giving diagnosis or to assess the full range symptoms

of PTSD, IES was considered the most suitable scale that could be used in the present study.

IES has been adapted and used firstly in Turkish literature in a study which investigated gender differences in distress levels, coping strategies and stress related growth following the 1999 Marmara Earthquake (Güneş, 2001). Two psychology professors and one clinical psychologist who are fluent in English translated IES into Turkish and two psychologists evaluated the translated scale through choosing the best fitting translation for each item. According to the factor analysis of the IES, the reliability of intrusion (which included nine items) and avoidance (which included 4 items) subscales was found to be .78 and .68, respectively. The reliability of the whole scale was found to be .75. The correlations among the subscales and the whole scale were found to be significant.

In the present study, the translated and adapted form of IES which was described above was used. Participants were asked to rate posttraumatic symptoms on a 4-point scale according to how often each has occurred in the last 7 days, the response options were; 1 (not at all), 2 (rarely), 3 (sometimes) and 4 (always). In the original form of the scale the question style was "due to the event" but in this study it was changed to "due to the accident". The total score was accepted as the degree of the psychological distress following motor vehicle accidents. The psychometric properties and factor analysis of IES will be presented in the results section.

2.2.2. Ways of Coping Questionnaire (WCQ)

To measure coping strategies of survivors of MVAs, Ways of Coping Questionnaire (WCQ; Folkman & Lazarus, 1985) was used. WCQ was developed to assess the cognitive and behavioural coping styles which the individual uses to cope with stressful situations. WCQ which includes 66 items was revised later and the response format of the original scale has been changed from "yes-no" answer to a 4-point Likert scale (0= not used, 3= used a great deal)(Folkman & Lazarus, 1985). According to the results of factor analysis which was conducted by Folkman and Lazarus (1985) in a university student sample, eight subscales and their average reliabilities were reported as distancing (r= .71), seeking social support (r= .81), positive reappraisal (r= .65), problem-focused coping (r= .85), wishful thinking (r= .84), self-blame (r= .75), self-isolation (r=.65) and tension-reduction (r= .56). In that analysis, the researchers deleted 14 items because of not loading clearly on any one factor, so at the final analysis there were 42 items.

In another study, Bouchard, Sabourin, Lussier, Wright and Richer (1997) used WCQ in their study which is related to 506 couples. They found four subscales according to factor analysis as problem-focused, denial, distancing/avoidance and confrontation/ seeking social support. They also examined the eight-factor model which was found by Folkman and Lazarus (1985) and according to these researchers

their four-factor model was a better approximation of the WCQ data than eight-factor model of Folkman and Lazarus.

Siva (1988) translated WCQ into Turkish and adapted by adding eight items tapping superstition and fatalism which were thought to the relevant to the Turkish culture (as cited in Uçman, 1990). In the adaptation study, Siva investigated the relationship between coping with infertility, learned helplessness and depression and found the internal consistency of the whole scale to be .91. Results of factor analysis showed eight factors which are planful problem-solving, self-blame, escape / avoidance, helplessness , growth, fatalistic approach, seeking refuge in supernatural forces and emotional control (as cited in Uçman, 1990).

In another study Şahin and Durak (1995), used the short form of WCQ, which included 30 items in a Turkish sample of university students. They reported five factors as self-confident (r=.80), seeking social support (r= .47), optimistic (r=.68), submissive styles (r=.70) and helpless (r=.73).

Oral (1994) found eight factors of WCQ which accounted four 34 % of the variance in a study related to a high school students sample. The factors were self-blame, supernatural forces, seeking refuge in fate, social support, active coping, withdrawal, optimistic approach and helpless approach.

Karancı, Alkan, Akşit and Sucuoğlu (1999) used WCQ in a study in which they examined the relationship between psychological distress and coping strategies of 1995 Dinar earthquake survivors. They used shortened WCQ in which the items were reduced from 74 to 61 and they found the reliability of the whole scale to be .92. According to factor analysis five factors which are problem solving (r= .75), fatalistic approach (r= .78), helplessness approach (r= .69), seeking social support (r= .59) and escape (r= .39) were found. The researchers modified the response format after the pilot study from 4 to 3 points because of the difficulties in comprehension (1= never, 2= sometimes, 3= always). Also in that study item inclusion criteria was taken as a factor loading of .35 so eleven items were excluded because of not meeting the inclusion criteria. Cronbach Alpha reliability of the whole scale which consisted of forty-nine items was found to be .76.

In another study which explored gender differences in distress levels, coping, stress related growth following 1999 Marmara Earthquake, Güneş (2001) used WCQ which was modified by Karancı et al. (1999) and found 4 factors which are problem solving/ optimistic (r= .83), fatalistic approach (r= .77), helplessness approach (r=.73) and escape (r= .55). In that study item inclusion criteria was taken as factor loading of .40 and seven items were further excluded from the scale. So, the whole scale consisted of 42 items. Cronbach Alpha reliability of this scale was found to be .78.

In the present study, participants were asked to rate the frequency of the 42 coping strategies used in Güneş's (2001) study. They were asked to rate items considerably their difficulties related to their MVA on a three points scale (1= never, 2= sometimes and 3= always). According to the results of factor analysis of WCQ, three factors namely optimistic/problem solving coping, helplessness coping and fatalistic coping strategies were found in the current study (see appendix B). The Cronbach Alpha reliabilities were .91, .87 and .81 respectively.

2.2.3. Stress Related Growth Scale (SRGS)

To evaluate the positive outcomes of the survivors after MVA, Stress-Related Growth Scale (SRGS) was used. SRGS was developed by Park, Cohen and Murch (1996) to assess positive outcomes after stressful events on the basis of Schaefer and Moos' (1992) conceptualization of personal growth. According to Schaefer and Moos (1992), people experience stress-related positive outcomes in three interrelated areas which are *personal resources* such as enhanced self-concept, *coping skills* such as enhanced problem solving coping ability and *social resources* such as enhanced relationships, (as cited in Park et al., 1996).

Park et al. (1996) used SRGS in a sample of college students by asking the participants to rate 82 items. Participants rated items on a three point scale (0= not at all, 1= somewhat, 2= a great deal) in the context of their most stressful event in

the past 12 months. According to the results the number of items were reduced from 82 to 50 because of the skewed responses. Researchers found one general factor after factor analysis due to the loading of most items on one general factor. Consequently, without a clear factor solution 50 items represented overall growth. Internal consistency of this 50 items SRGS was found to be .94 and test-retest reliability was found to be .81.

In another study, Park et al. (1996) administered SRGS to a sample of college students and a friend or family member of them and found a significant correlation (r= .21) between the responses of college students and the responses of their friend or family member in SRGS scores.

In the Turkish literature, SRGS was used firstly by Güneş (2001) to examine the stress related growth which is experienced by 1999 Marmara Earthquake survivors. Two psychology professors and one clinical psychologist who are fluent in English translated SRGS into Turkish. Then, two psychology lecturers evaluated the translation for clarity of expression and conformity to the original item. Güneş (2001) used 50 items form of SRGS and found the Cronbach Alpha reliability of the whole scale to be.94. Kesimci (2003) used this 50 items form of SRGS in a sample of breast cancer patients to asses stress related growth due to breast cancer experience and found the Cronbach Alpha reliability of the whole scale to be . 95.

In the present study, this form was used. The participants were asked to rate the suitability of 50 items for their experience due to their MVAs on a three points scale (1= not at all, 2= somewhat and 3= a great deal). The psychometric properties of SRGS will be presented in the result section.

2.2.4. Social Support Scale

Social support scale was used to measure the level of social support from the spouse and family members, relatives, neighbours and friends of MVA survivors. This scale which included 12 items, was developed to be used in a study related to 1992 Erzincan earthquake victims (Karancı & Rüstemli, 1997) and the reliability of the scale was reported as .83 (as cited in Alkan, 1998).

Alkan (1998) used Social Support Scale in her study to assess the degree of social support of victims of 1995 Dinar earthquake. According to the result of factor analysis four factors were found which were named as *social support from family members and spouse* (r=.72) , from *relatives* (r=.83), from *friends* (r= .82) and from *neighbours* (r=.89). Factor scores were calculated by summing up the responses to the items of the factors. The Cronbach alpha reliability of the whole scale was found to be .82. Alkan (1998), in that study, also examined the gender differences and found no significant difference between males and females on the levels of social support received from family members/spouse, friends, relatives and neighbours.

Both women and men had highest score on social support from family/spouse and the mean scores of social support from neighbours were significantly lower than other social support sources for both men and women.

In the present study, participants were asked to rate the frequency of 12 items of social support scale on a four-point scale (1= never, 2=rarely, 3= sometimes and 4= always). The psychometric properties and factor analysis of Social Support Scale will be presented in the result section.

2.2.5. Beck Depression Inventory (BDI)

Beck Depression Inventory (BDI) was developed by Beck, Rush, Shaw and Emery (1978) for assessing cognitive, emotional, motivational and somatic symptoms of depression. The scale included 21 items related to self-blame, feelings of punishment, body image, pessimism, loss of appetite, disturbance of sleep, fatigue, feelings of exhaustion, aggressiveness, feelings of guilt, loss of sexual impulse (as cited in Hisli, 1988).

Beck found the test-retest reliability of BDI to be .86 (as cited in Hisli, 1989). Hisli (1988) translated and adapted this scale into Turkish and used it in a sample of 259 university students. Results showed that test-retest reliability was .74. Beck et al. (1978), recommended the cut off scores of BDI as; none or minimal

depression < 10, mild to moderate depression 10-18, moderate to severe depression 19-29, and severe depression 30-63 (as cited Hisli, 1988).

In the present study participants were asked to circle the item which best described how they had been feeling in the past week. Participants rated the severity of each symptom on a 4-point scale ranging between 0-3. A total score was obtained by summing together all of the items. Depression scores of the participants were used as a control variable in the current study.

2.3. Procedure

The Questionnaires were given in four different places. The first one was "Ankara Emergency & Traumatology Hospital" and "Numune Hospital" orthopedics services. 18.5 % (n=37) of the participants were patients who were MVA survivors, having accidents within 6 months and were treated in these hospitals. 31.5 % (n=63) of the participants responded to the questionnaire in police headquarters. 28.5 % (n=57) of the questionnaires were administered to MVA survivors in an insurance agency which is named as "Axa Oyak". Before the administration the aims and the procedure of the study was explained to the directors of the hospitals, insurance agencies and police headquarters and then their consent was taken for the study. Three undergraduate psychology students were trained to administer the research instrument by the principal researcher of the study who is a

graduate student of clinical psychology. The trained interviewers introduced themselves and gave information about the aim and the procedure of the study to the participants. Then they were asked for consent to voluntarily participate in the study. 21.5 % (n= 43) of the questions were administered in cafés. The trained interviewers found MVA survivors in cafes in Kızılay by asking people whether they experienced a MVA in the last 6 months and whether they will participate voluntarily in the study . 27 MVA survivors refused to participate due to having little time. Five MVA survivors discontinued responding because of being bored. These survivors who discontinued were excluded from the data. The principal researcher started to collect data in February 2003 and with the participation of trained interviewers , the data collection was completed in September 2003. Thus collection of data took 7 months. Each questionnaire was administered individually and administration of each questionnaire lasted approximately one hour.

2.4. Statistical Analysis

All the analyses of the data were carried out by using the Statistical Package for Social Sciences (SPSS) Programs (Nie, Hull, Jerkins, Steinbrener & Bent 1975; Tabachnick & Fidel, 1996). Initially, descriptive statistics on socio-demographic & accident variables were obtained. The factor structures of the scales were examined by principal component analysis (PCA) with varimax rotation. Also reliability

analysis of the scales were conducted. Then, the predictors of psychological distress and stress related growth were examined by stepwise multiple regression analysis.

CHAPTER III

RESULTS

The results of the data analysis will be presented in the following sections. Firstly, psychometric properties of the Impact of Event Scale (IES) and the characteristics of the sample in terms of the intrusive and avoidance symptoms will be presented. Secondly, psychometric properties of the Stress Related Growth Scale (SRGS) and the perceived stress related growth level of the sample will be presented. Thirdly, the factor structure of the appraisals related to the accident that were used in the regression analysis will be presented. Fourthly, the relationship of the IES scores and the SRGS scores and finally, the predictors of posttraumatic symptomatology and perceived stress related growth will be given.

3.1. The Factor Structure of the Impact of Event Scale (IES)

The factor structure of the IES was examined by principal component factor analysis (PCA) with varimax rotation. The initial analysis, employing an eigenvalue of 1.00 as the criterion resulted in 3 factors explaining 50 % of the variance. Further analysis with restrictions on the number of factors suggested that a 2-factor solution

explaining 41 % of the total variance, produced the clearest solution. A factor loading of .35 was employed as the criterion to determine the item composition of the factors. All items met the criterion and were included for further analysis. Eight items loaded on the first factor, which was named as "intrusion". Cronbach alpha reliability coefficient for the internal consistency of the intrusion subscale was found to be .83. Seven items loaded on the second factor, which was titled as "avoidance", and its Cronbach alpha reliability coefficient was found to be .63. Mean factor scores were calculated by summing up the responses to the items of each factor and then by dividing them by the number of the items in that factor. The item composition of the factors, the factor loadings of each item and Cronbach alpha reliability coefficients of the factors are presented in Table 2.   The internal consistency of the whole scale was found to be .77.

Table 2. Item Composition of the two IES Factors, Their factor loadings, Percentage of Explained Variance and Cronbach Alpha Values

Item no Item	Factor Loadings	
Factor 1 : Intrusion	**Factor 1**	Factor 2
Explained variance 28 % ; Cronbach alpha = .83		
5. I had waves of strong feelings about the accident	**.81**	.00
4. I had trouble falling asleep because of the pictures or thought about the accident	**.76**	.00
14. Any reminder brought back the feelings about the accident	**.74**	.12
1. I thought about the accident when I didn't mean to	**.69**	.00
11. Other things kept making me think about the accident	**.66**	.00
10. Pictures about the accident popped into my mind	**.65**	.12
6. I had dreams about the accident	**.49**	.00
12. I was aware that I still had a lot of feelings about the accident, but I didn't face it	**.49**	.23
Factor 2 : Avoidance	Factor 1	**Factor 2**
Explained variance 13 % ; Cronbach alpha = .63		
9. I tried not to talk about the accident	.20	**.71**
3. I tried to remove the accident from my memory	.21	**.66**
13. I tried not think about the accident	.18	**.66**
7.I stayed away from the reminders of the accident	.27	**.49**
8. I felt as if the accident didn't happen	.00	**.43**
15. My feelings about the accident were kind of numb	.00	**.44**
2. I avoided letting myself get upset	-.26	**.38**

The correlations between the whole scale scores and the subscales and inter-correlations among the subscales were examined and were found to be all significant. The results are presented in Table 3.

Table 3. Pearson Correlation Coefficients Among the Scale and Subscales of IES

Scales	IES	Intrusion	Avoidance
1. Impact of Event Scale (IES)		.84**	.74**
2. Intrusion subscale			.26**
3. Avoidance subscale			

**p< .01

Mean factor scores were calculated by summing up the responses to the items of the total scale and intrusive and avoidance subscales and dividing them by the number of the items. Means and standard deviations for the IES and its factors are presented in Table 4.

Table 4. Means and Standard Deviations of IES and Its Factors

	Whole sample (range:1-4)	
	M	SD
Intrusive Symptoms	1.97	.70
Avoidant Symptoms	2.08	.56
General Distress	2.16	.54

To examine possible gender difference in general distress level an independent samples t-test was computed and it was found that women's total scale mean scores (M = 2.30, SD =.52) were significantly higher than men's scores (M=2.10, SD=.53, t(198) = 2.33, p<.05) In the context of intrusive and avoidance symptoms a 2 (gender) by 2 (intrusion, avoidance) ANOVA with repeated measures on IES factors was computed. Results showed the main effect of gender to be significant (F(1,198) = 5.43, p<.05) where women obtained higher scores than men. Neither the main effect of IES nor gender by IES factors interaction was found to be significant. The results are presented in Table 5.

Table 5. Results of Analysis of Variance on IES Factors

Source of variation	SS	DF	MS	F	Sig. of F
Gender	2.73	1	2.73	5.43	.021
Between Error	99.85	198	.50		
Stress	.65	1	.65	2.14	.144
Gender by Stress	.14	1	.14	.46	.495
Within Error	59.93	198	.30		

3.2. Factor Structure of the Stress Related Growth Scale (SRGS)

The factor structure of SRGS was examined by principal component analysis (PCA) with varimax rotation. Results showed that, most of the items of the SRGS had the highest loading on one general factor. As mentioned before, Park et al. (1996) who developed SRGS, also found one general factor after factor analysis. Similar to the present study, most of the items also loaded on one general factor in their study. Consistent with these results, in the present study, the total score of SRGS was used in further analysis. The total score of SRGS was calculated by summing up the responses to SRGS items (M: 109, SD: 29.64 , Min:50, Max: 150). The Cronbach Alpha reliability of the whole scale was found to be .98. Mean factor scores were calculated by summing up the responses to the items of the SRGS and dividing them by the number of the items (M: 2.18, SD: .59, range: 1-4)

3.3. Relationship of Impact of Event Scale (IES) and Stress Related Growth Scale (SRGS)

The relationship between IES and SRGS was examined. The correlations between total IES and SRGS and also between SRGS and intrusion-avoidance subscales were computed by Pearson product moment correlation coefficients and found to be significant. The results are presented in Table 6.

Table 6. Pearson Correlation Coefficients Among the Scale and Subscales of IES and SRGS

Scales	1	2	3	4
1.SRGS		.16*	.18**	.21**
2.Intrusion			.26**	.84**
3. Avoidance				.74**
4. IES				

*p< .05   **p< .01

3.4. Factor Structure of Appraisals Related to Accident

As mentioned earlier, the third part of the research questionnaire contained a set of items which focused on the subjects' appraisals related to the accident such as perceived level of responsibility, fear, helplessness, perceived danger, thoughts of death to oneself or another person and sense of control. These items were assessed as possible components to be included as independent variables in the regression analysis. The participants were asked to rate the suitability of 7 items for their experience of their MVAs on five point likert scales (1= not suitable, 5= totally suitable). The responses to the 7 items were subjected to factor analysis using principal component analysis (PCA) with varimax rotation. The initial analysis, employing an eigenvalue of 1.00 as the criterion resulted in 2 factors explaining 66 % of the variance. Each item was included under the factor in which it had the highest loading. A factor loading of .35 was employed as the criterion. According to

the results, all items met this criterion. Five items loaded on the first factor which was labelled as "*perceived threat*", reflecting the participants subjective perceptions of threat and fear during the accident. The Cronbach alpha reliability of this subscale was found to be .84. Two items loaded on the second factor which was labelled as "*perceived personal responsibility*", reflecting perceptions of responsibility for the occurrence of the accident. The Cronbach alpha reliability coefficient for this factor was found to be .64. Mean factor scores were calculated by summing up the responses to the items of each factor and then by dividing them by the number of the items in that factor. The item composition of the factors, the factor loadings of each item and Cronbach alpha reliability coefficients of the factors are presented in Table 7.

Table 7. Item composition of the Accident Appraisal Factors, Their factor loadings, Percentage Variance Explained and Cronbach Alpha Value

Item no Item	Factor Loadings	
	Factor 1	Factor 2
Factor 1 : Perceived Threat		
Explained variance 45 % ; Cronbach alpha = .84		
3. I felt myself very helpless during the accident	**.83**	.16
2. I was very afraid during the accident	**.80**	.15
5. I thought that I would die during the accident	**.79**	.00
4. The accident was very dangerous according to me	**.77**	.00
6. I thought that another person would die during the accident	**.75**	.00

(Table 7. Cont.)		
Factor 2 : Perceived Personal Responsibility	Factor	**Factor**
	1	**2**
Explained variance 21 % ; Cronbach alpha = .64		
7. I could have prevented the accident	-.13	**.85**
1.I was responsible for the accident	-.12	**.83**

The correlation analysis showed a non-significant correlation between perceived personal responsibility and perceived threat. This result indicated that they were two separate apprasial dimensions and so they were used seperately in further analysis.

Mean factor scores were calculated by summing up the responses to the items of the responsibility factor and perceived threat factor and dividing them by the number of the items. The mean scores of the responsibility dimension were very low, considering the range of the scale (range:1-5, M=1.96, SD=1.16). On the other hand, the mean scores of the perceived threat dimension were relatively high (range:1-5, M=3.43, SD=1.20).

3.5. Regression Analyses: Predictors of Posttraumatic Distress Symptoms and Stress Related Growth

Before conducting the regression analysis the categorical independent variables that will be used in the analyses were examined. It was seen that there were quite a few subjects in the category of pedestrians. In order to examine possible differences between pedestrians and passengers on dependent variables, a one-way ANOVA was conducted. Results showed that there were no significant differences between passengers and pedestrians on general distress, intrusion, avoidance and growth. So, the pedestrian and the passenger categories were merged into one category. Thus, the status of the survivors in the accident was reduced into two categories being in regards to driver (driver) and non-driver (passenger and pedestrian). Similarly, for marital status there were only a few subjects in some categories such as engaged (N=11), widowed (N =7) and divorced (N=5). Thus, the marital status category was converted into being "single" versus being "married" categories.

Four separate multiple regression analyses were conducted: 1. For general distress (IES), 2. For intrusive symptoms, 3. For avoidance symptoms and 4. For stress related growth. In all of these analyses, predictor variables were entered in three blocks. Socio-demographic variables such as gender, age, employment status (1= currently employed, 2= currently unemployed), marital status (1= married, 2=

single), years of education, social security entitlement (1= have social security entitlement, 2= does not have social security entitlement), and also BDI scores as a control variable were entered in the first block in order to control for their contributions to the dependent variables. In the second block, variables related to the accident such as number of the previous motor vehicle accidents, time since the accident, the status of the participant as driver or passenger, the perceived severity of injury, the result of the treatment after the accident, duration of hospitalization and perceived responsibility and threat scores were entered. In the last block, coping strategies and social support were entered. The means, standard deviations and ranges of predictor variables that were used in the three blocks are presented in Table 8. The Pearson product-moment correlations among the predictors and dependent variables are presented in Table 9. As can be seen from Table 9, most predictor variables were found to be significantly correlated with the dependent measures.

Table 8. Means, Standard Deviations and ranges of Variables Used in The Regression Analyses

Predictor Variables	Method	Block	Mean	Standard Deviation	Range
Socio-Demographics	Enter	1			
Gender(1=M ; 2=F)					1-2
Age			33.25	10.42	18-65
Employment (1=Yes ; 2=No)					1-2
Marital Status (1=M ; 2=S)					1-2
Years of Education			12.21	3.64	1-17
Social Security (1=No ; 2= Yes)					1-2
BDI			6.20	8.35	0-54
Accident-related factors	Stepwise	2			
Number of previous accidents			1.77	2.37	0-20
Time since the accident (days)			65.49	46.25	5-178
Perceived severity of injury			1.46	1.80	0-5
The result of the treatment (0=No treatment; 1= Continuance of complaints ; 2= Totally recovered)			.84	.92	0-2
The status of the participant in the accident (1=non-driver ; 2= driver)					1-2
Duration of the hospitalization (days)			5.01	11.99	0-105
Perceived responsibility			1.96	1.16	1-5
Perceived threat			3.43	1.20	1-5
Post-accident factors	Stepwise	3			
Optimistic/problem solving			2.39	.44	1-3
Fatalistic			2.26	.57	1-3
Helpless			1.71	.42	1-3
Social support			2.93	.66	1-4

Table 9. Correlation Matrix of Predictor Variables

Variables	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Gender	.06	.27**	.06	.03	-.01	-.00	-.28**	.05	.12	.07	-.49**	.04	.05	.05	-.00	.23**	-.19**	.28**
2. Age		.02	-.49**	-.15*	.21**	.04	-.04	.21**	.16*	.07	-.09	.17*	.02	.01	.05	.10	.02	-.00
3. Employment			.13	-.28**	-.16*	.12	-.12	.08	.19**	.19**	-.26**	.09	.18**	.06	.14*	-.00	-.09	.12
4. Marital Status				.11	-.05	-.07	-.06	.02	-.12	-.04	.13	-.13	-.17*	-.20**	-.05	-.03	-.03	-.02
5. Years of Education					.21**	-.30**	-.01	-.05	.15*	-.11	.13	-.14*	-.11	-.28**	-.27	.17*	-.02	.03
6. Insurance policy						-.03	.07	-.03	.04	-.05	-.03	-.02	.01	-.15*	.02	.01	.06	-.21
7. Depression (BDI)							-.07	.12	.15*	.12	-.13	.23**	-.04	-.01	.39**	-.31**	.02	.06
8. Number of previous accidents								-.05	-.11	-.06	.13	-.10	-.13	-.01	-.15*	-.14*	.04	-.21**
9. Time since the accident									.11	.13	-.12	.16*	-.15*	-.10	-.03	-.06	.01	.06
10. Perceived severity of injury										.77**	-.21**	.71**	.08	.14*	.11	.08	-.06	.21**
11. The result of treatment											-.10	.37**	.06	.14*	.04	.11	-.10	.32**
12. The status of the participant												-.19**	.06	-.06	-.06	-.08	.34**	-.17*
13. Time of hospitalization													.05	.11	.18**	-.01	.02	.04
14. Optimistic/problem solving														.52**	.27**	.14*	-.14*	.17*
15. Fatalistic coping															.25**	.19**	-.11	.11
16. Helpless coping																-.06	.11	.09
17. Social support																	-.06	.31**
18. Percived responsibility																		-.08
19. Perceived threat																		

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3.5.1. Predictors of General Distress

To evaluate how well general distress is predicted by socio-demographic variables, accident-related variables, coping strategies and social support, stepwise multiple regression analysis was conducted. Variables were entered in three blocks as presented in table 9 in the previous section. The analysis showed that socio-demographics and BDI (first block) (R^2=.15, $F(7,190)$=4.89, p<.001), accident related factors (second block) (R^2=.05, $F(8,188)$=5.21, p<.001) and coping/support (third block) (R^2 =.10, $F(10,187)$ = 8.03, p<.001) all contributed significantly to the variance in general distress. The total R^2 was .30.

According to the results; in the final model, age, perception of threat and helplessness coping style were found to be significant predictors of general distress. The other variables used in the analysis were not found to be significant predictors of general distress levels. The unstandardised regression coefficents (ß), the standardised regression coefficents (Beta), R^2, R^2 change and t values of the last model in the analysis are presented in Table 10.

Table.10. Predictors of General Distress

Variable	Block	R²	R² change	ß	B	t
Socio-Demographics	1	.153	.153***			
Gender				.10	.08	1.27
Age				.00	.14	1.94*
Current employment				.13	.11	1.60
Marital Status				.00	-.01	-.13
Social Security entitlement				.00	.03	.41
Table 10 (cont.)						
Variable	Block	R²	R² change	ß	B	t
Social security entitlement				.15	.12	1.80
Depression				.16	.12	1.78
Accident-related factors	2	.199	.046**			
Perceived threat				.00	.18	2.62**
The result of treatment				.00	-.12	-1.84
Post-accident factors	3	.301	.102***			
Helplessness coping				.46	.35	5.21***

*p<.05, **p<.01, ***p<.001

3.5.2. Predictors of Intrusive Symptoms

Stepwise multiple regression analysis was conducted to examine how well intrusive symptoms is predicted by socio-demographic variables, accident-related variables, coping strategies and social support, Variables were entered in three blocks as given in the previous section. The analysis showed that socio-demographics (first block) (R^2=.20, $F(7,190)$=6.63, p<.001), accident related factors (second block) (R^2=.06, $F(9,188)$=7.37, p<.001) and coping (third block) (R^2 =.10, $F(10,187)$=10.54, p<.001) all significantly explained the variance in intrusive symptoms. The total R^2 was .36.

According to the results in the final model, age, having social security entitlement, depression, perceived threat and helplessness coping style were found to be significant predictors of intrusive symptoms. The other variables used in the analysis were not found to be significant predictors of the intrusive symptom levels. The unstandardised regression coefficents (ß), the standardised regression coefficents (Beta), R^2, R^2 change and t values of the last model in the analysis are presented in Table 11.

Table.11. Predictors of Intrusive Symptoms

Variable	Block	R²	R² change	ß	B	t
Socio-Demographics	1	.196	.196***			
Gender				.00	.06	.98
Age				.00	.21	3.02**
Current employment				.00	.05	.77
Marital Status				.00	.09	.34
Years of education				.00	-.05	-.75
Social security entitlement				.27	.16	2.58**
Depression				.22	.12	1.94*
Accident-related factors	2	.255	.059**			
Perceived threat				.13	.22	3.29***
The result of treatment				.00	-.11	-1.87
Post-accident factors	3	.360	.105***			
Helplessness coping				.61	.36	5.54***

*p<.05, **p<.01, ***p<.001

3.5.3. Predictors of Avoidant Symptoms

Stepwise multiple regression analysis was conducted to examine how well avoidant symptom scores were predicted by socio-demographic variables, accident-related variables, coping strategies and social support. Variables were entered in three blocks as given in the previous section. The analysis showed two models

which are socio-demographics (first block) (R²=.05, F(7,190)=1.34, p>.05) and coping (third block) (R² =.05, F(8,189)=2.50, p<.05). The total R² was .10

According to the results in the final model, years of education, depression scores and fatalistic coping style were found to be significant predictors of avoidant symptoms. The other variables used in the analysis were not found to be significant predictors of avoidance symptom levels. The unstandardised regression coeffcients (ß), the standardised regression coeffcients (Beta), R², R² change and t values of the last model in the analysis are presented in Table 12.

Table 12. Predictors of Avoidance Symptoms

Variable	Block	R²	R² change	ß	B	t
Socio-Demographics	1	.047	.047			
Gender				.00	.06	.89
Age				.00	.02	.26
Current employment				.17	.14	1.83
Marital Status				.00	.00	.09
Years of education				.00	.16	2.02*
Social security entitlement				.00	.03	.44
Depression				.21	.15	2.04*
Post-accident factors	3	.096	.048**			
Fatalistic coping				.23	.23	3.18**

*p<.05, **p<.01

3.5.4. Predictors of Stress Related Growth

Stepwise multiple regression analysis was conducted to examine how well stress related growth scores are predicted by socio-demographic variables, accident-related variables, coping strategies and social support. The predictor variables were entered following the same order and in three blocks as in predicting general distress, intrusive and avoidance symptoms. The analysis showed that socio-demographics (first block) (R^2=.12, $F(7,190)$=3.83, $p<.01$), accident related factors (second block) (R^2=.38, $F(9,188)$=6.92, $p<.001$) and coping (third block) (R^2 =.03, $F(11,186)$=19.17, $p<.001$) were positively related to perceived growth. The total R^2 was .53.

According to the results in the final model, not having social security entitlement, perceived threat, optimistic / problem solving coping and fatalistic coping style were found to be significant predictors of stress related growth. The other variables used in the analysis were not found to be significant predictors of stress related growth. The unstandardised regression coefficents ($ß$), the standardised regression coefficents (Beta), R^2, R^2 change and t values of the last model in the analysis are presented in Table 13.

Table.13. Predictors of Stress Related Growth

Variable	Block	R²	R² change	ß	B	t
Socio-Demographics	1	.124	.124**			
Gender				.00	-.01	-.30
Age				.00	.00	.09
Current employment				.00	.01	.22
Marital Status				-.10	-.08	-1.37
Years of education				.00	.00	.01
Social Security entitlement				-.17	-.12	-2.26*
Depression				.00	.00	.06
Accident-related factors	2	.506	.379*			
Perceived threat				.11	.22	4.09***
The number of previous accidents				.00	-.09	-1.79
Post-accident factors	3	.537	.031***			
Optimistic/problem solving coping				.56	.42	6.69***
Fatalistic coping				.24	.23	3.69***

*p<.05, *p<.01, ***p<.001

As a summary of the results, only the significant predictor variables in the four regression analyses are presented in Table 14.

Table 14. Significant Predictor Variables for All Dependent Variables

	General Distress	*Intrusive Symptoms*	*Avoidant Symptoms*	*Stress Related Growth*
1.Pre-accident Variables And Control Variables	Age (+)	Age (+) Social security entitlement (+) Depression (+)	 Years of education (+) depression (+)	 Social security entitlement (-)
2. Accident Variables	Perceived threat (+)	Perceived Threat (+)		Perceived threat (+)
3.Post-accident Variables	Helplessness coping (+)	Helplessness Coping (+)	Fatalistic coping (+)	Fatalistic coping (+) Optimistic/ problem solving coping

CHAPTER IV

DISCUSSION

This study aimed to investigate the predictors of psychological distress and stress related growth among the survivors of Motor Vehicle Accidents. The predictors were conceptualized as pre-accident variables, within accident variables and post-accident variables and their predictive values were examined. Firstly, the main results for general psychological distress as well as intrusion and avoidance will be discussed. Nextly, results on growth will be considered. Finally, the limitations of the present study will be presented, followed by the clinical implications of the findings and directions for future research.

4.1. Psychological Distress

In the present study, psychological distress was assessed by the Impact of Event Scale (IES). Considering the psychometric properties of the (IES), factor analysis indicated two factors, namely "intrusion" and "avoidance". This result is similar to other studies conducted in Turkey (Güneş, 2000) and other studies (Horowitz et al., 1979). In the context of reliability, according to the results, the total IES and its subscales, namely intrusion and avoidance showed satisfactory reliability. Total mean score of general distress was found to be 32.48 for this

sample. Although a direct comparison with other studies is not feasible and appropriate, a general comparison of the present study with other studies with MVA survivors seems to point out that the present sample has slightly lower levels of distress. For example, in Blanchard's et al. study (1996), with MVA survivors, the total mean score of IES was found to be 41.7 at initial assessment and 39.5 at 12-month assessment. In another study, the mean total score of IES was found to be 41.07 at initial assessment and 33.89 at six-month assessment (Barton et all., 1996). According to these results, it seems that the current study sample has lower levels of distress. However, in Richmond & Kauder's study (2000), the total mean score of IES was found to be 22.5 in hospital and 30.6 at three months postdischarge. Similarly, in Jeavons's et al. study (2000), the total mean score of IES of MVA survivors was found to be 17.29 which was much lower than the present study. Thus, all these findings seem to suggest that the MVA survivors are a heterogeneous group in regards to their distress levels. This variation is likely to be related to pre-accident, accident and post-accident factors that were present in various studies. Therefore, without considering all these possible differences it does not seem to be meaningful to make conclusions on distress levels following motor vehicle accidents.

In order to examine the validity of the IES, possible gender differences that were previously noted in the literature were investigated (Blanchard & Hickling, 1998). The results showed that women's distress scores were higher than men's

scores. As mentioned before in the introduction section, most of the studies found that women are more distressed than men following traumatic events. Thus, the present result was consistent with the literature, supporting the validity of the general distress as measured by the IES. This finding is also important in pointing out greater vulnerability of women to the posttraumatic stress symptoms. Although this finding needs to be investigated further in future studies, it seems necessary to pay special attention to female MVA survivors for relieving their psychological distress.

Wolfe and Kimerling (1997) explains the differences between males and females from social- cognitive perspective. According to this perspective, "cognitions related to a traumatic event are more likely to be dissonant with men's self-concepts and that men are therefore more highly motivated to alter their thoughts about the trauma in order to reduce the dissonance. This may lead to a relatively more positive appraisal of the accident by males which may in turn reduce their distress levels. Furthermore, gender role socialization may cause men to suppress symptom experiences and women to disclose them. Men are supposed to be fearless and strong in the face of adversity and may find it particularly threatening to acknowledge recurrent collections and emotional distress upon reminders of a traumatic event" (as cited Norris, Perilla, Ibanez & Murphy, 2001, p.24). Although the expected gender differences were found on general distress,

there were no significant differences between men and women in their intrusion and avoidance scores.

Considering the predictor variables of psychological distress, regression analyses showed that, age (pre-accident factor), perceived threat (accident-related factor) and helplessness coping (post-accident factor) were significant predictors of general psychological distress. For intrusive symptoms, age and having a social security entitlement (pre-accident factor), depression (control variable), perceived threat during the accident (accident-related factor) and helplessness coping (post-accident factor) were predictor variables. Finally, for avoidance symptoms, years of education (pre-accident factor), depression (control variable) and fatalistic coping (post-accident factor) were significant. According to these results, significant predictors seem to be a combination of pre-accident, accident and post- accident factors. As mentioned before, Blanchard and Hickling (1998) described the risk factors for MVAs related posttraumatic stress in three groups as pre-accident factors which are characteristics about the survivor, within accident factors which are appraisals and characteristics of the accident and post-accident factors such as coping styles or social support. According to these researchers, none of these factors are solely responsible for distress. For instance, the characteristics of the survivor (e.g. gender, age, marital status), MVA and the survivor's subjective appraisals of the event, and the coping resources may all contribute to the distress experience. According to Blanchard et al.(1994), "Each person brings individual risk factors and

vulnerabilities and each accident then has its unique traumatic aspects that interact with the variable perceptions of every person involved in the accident. The survivors then struggle to cope with the traumatic event and its after effects, while attempting to make some kind of sense out of what has happened to them" (p.285).

It appears that one's vulnerability to developing posttraumatic stress may increase traumatic distress when the trauma occurs. Then, the survivor's coping style may also influence distress and may increase or decrease it. The literature suggests that, emotion-focused coping is related to high levels of distress while optimistic/ problem-focused coping is related to low levels of distress. The finding that age, perceived threat during the accident and helplessness coping style predicted general distress is consistent with this suggestion. The present results showed that age as a vulnerability factor, perceived threat as an accident factor and helplessness coping which is an emotion-focused coping style were significant predictors of distress. Thus, with increasing age, perception of serious threat to self or others during the accident increases distress. Furthermore, using helplessness coping which may reduce one's distress. Perception of control increases distress further.

The present findings highlight that intrusive and avoidance symptoms of posttraumatic stress reflect distinct aspects of the trauma response. While intrusive symptoms were associated with age, having social security entitlement, perceived

threat, helplessness coping, avoidance symptoms were associated with years of education and fatalistic coping.

Cognitive theories of intrusive symptoms postulate that representations of a trauma are encoded at the time of the traumatic event and these are involuntarily activated when triggered by relevant cues (March, 1990). Horowitz (1986) states that avoidance which is seem together with intrusions is a defensive maneuvar that prevents the processing of traumatic memories. Intrusion was found to be related to helplessness coping. This type of coping is characterized as emotion-focused, in which the individual feel helpless and do not intend to change or improve his/her situation. He/she only thinks that the situation is inevitable and that he/she is helpless to cope with the stress related to the accident. Helplessness coping may lead to an increase of the awareness and conscious recall of the trauma-related cognitions. Also, perceived threat was found as a predictor of intrusions. Threat perception may lead to high levels of anxiety and anxiety may lead to traumatic recollections. Age (individual vulnerability) and having social security entitlement which are pre-accident variables were also related to intrusions. It is difficult to interpret this relationship. As people get older, they may feel more fragile and physically vulnerable. Thus the accident may affect more.

Considering avoidant symptoms, years of education and fatalistic coping were significant predictors. Years of education as a pre-accident variable, may lead

to an awareness that enable to increase of avoidance from painful reminders of trauma. Fatalistic coping is a form of emotion-focused coping style that disengages the person from reality of the problem and it may increase psychological distress. On the other hand, it also makes the person accept the situation without refusing it. Fatalistic coping may lead to avoidance because the person accepts the situation. The survivors who use fatalistic coping may think that "everything comes from God, so I am not responsible for anything". This kind of thinking may lead to avoidance symptoms as well as to denial of responsibility. The literature suggests that acceptance of responsibility for accident leads to a decrease in distress while blaming others and not accepting responsibility is associated with higher levels of distress (Davidson, Van Dyke & Agar-Wilson, 2000).

In most of the studies with traumatic populations, depression was a significant predictor for posttraumatic stress as found in the present study. Both traumatic stress and depression have same fundamental assumptions upon which the individuals build their sense of reality and safety. The individuals live their day-to-day life functioning with certain basic beliefs that they simply take for granted-that they are safe, that the world makes sense, that other people can be trusted, that the past is known and the future is predictable. They don't really believe that tragedy is going to strike them until it happens. However, trauma can strip them of the certain ground beneath their feet so that for the survivor, there is no longer any safety, the world does not make sense, other people can not be trusted, parts of past are

forgotten or erased, and the future is not predictable. These factors will interact in unpredictable ways with intrinsic vulnerabilities to produce the complicated picture of comorbidity. Changes in basic cognitive schematas are associated with problems in functioning, psychological distress and psychiatric symptoms (Janoff-Bulman, 1989).

These findings are in line with other studies with MVA survivors. Age (Jeavons et. all., 2000), perceived threat to life (Blanchard et all, 1996; Delehanty et all., 2002; Feinstein & Dolan, 1991; Jeavons et all., 2000; Mayou et all., 2002), emotion-focused coping (Kanninen's et all.,2002; Vitalino, Dewolfe, Maiuro, Russo & Katon, 1990) and depression (Blanchard et. all.,1994 ; Harvey & Bryant, 1999) have all been shown to be related with posttraumatic stress.

4.2. Stress Related Growth

Schaefer and Moos (1992) explained three kinds of positive outcomes that can develop after a negative life event. These are an increase in social, personal and coping resources. From this perspective, a three factors solution was expected from the Stress Related Growth Scale. However, the factor analysis yielded only a general factor. This finding is in line with other studies (Güneş, 2001; Kesimci, 2002; Park et. al., 1996) It seems that the present scale does not tap dimensions of perceived growth. The dimensionality of perceived growth needs to be examined in

further with alternative scales (e.g. The posttraumatic growth inventory, Tedeschi & Calhoun, 1996).

Regression analysis showed that; not having a social security entitlement (pre-accident factor), perceived threat (accident factor) and optimistic/problem solving coping and fatalistic coping (post-accident factor) predicted stress related growth.

The literature suggests that stress related growth is related positively to psychological distress. Indeed, the present results showed that stress related growth and distress symptoms were significantly and positively correlated. For growth to occur, the traumatic event needs to really affect the person and thus cause high distress. Not having a social security entitlement as a pre-accident variable and perceived threat as an accident variable were found to be significant predictors for stress related growth. Not having a social security may increase the stressfulness of the traumatic event and may cause high distress. On the other hand, high perceived threat may lead to high distress. Thus, the growth may follow.

Optimistic/ problem solving coping was found to be another significant factor related to stress related growth. It was suggested by Scheiver and Carver (1987) that, dispositional optimism is beneficial for psychological well being. Optimism refers to the tendency to expect the best possible outcome in a given

situation. According to Scheiver and Carver (1987), optimistic individuals are more likely than their pessimistic counterparts to adapt to stress by using problem-focused strategies. Also, optimists are expected to appraise traumatic events positively, to report personal growth or positive changes after trauma. In this context, a possible optimism factor which may depend on cultural characteristics may lead to problem focused coping in other words optimistic/ problem solving coping, and through problem focused coping, stress related growth may occur. The significant correlation between optimistic/ problem solving coping and growth supports this argument. Also, problem-focused coping has been associated with fewer physical symptoms and improved quality of life ((Nakano, 1991). On the other hand, some items of optimistic / problem solving coping such as "I tried to get something positive from the situation", "I tried to adapt a new perspective" "I changed or grew as a person" are similar to some items of SRGS. So the significant correlation between optimistic/ problem solving coping and growth may well be due to the overlapping items. Therefore, this relationship needs to be further investigated by using other assessment devices without overlapping item contents.

Another finding of the current study was that fatalistic coping also predicted stress related growth. Fatalistic coping may be associated with religious beliefs. For example, "I believe that God knows the best", "I pray for help from the God" which are some of the items in fatalistic coping might reflect these religious beliefs. This kind of thinking may strengthen the belief in fate and this may lead to a perception

of growth. Some of the SRGS items were, "My beliefs about God improved/ increased", "My reliance to God improved/ increased" which seem to reflect a religious commitment. So, further studies investigating the religious beliefs, preferably using sample with different religious commitments, stress and coping are needed.

As a conclusion, future studies need to become more specific and focus on the actual mechanisms and processes involved in the functioning of the resilient trauma survivor. It is important to ask how growth develops and which processes affect long-term adjustment following trauma. Detailed examination of these subjects will help the researchers to generate more detailed and more specific hypotheses about optimal natural healing processes after trauma.

In this study, it was found that emotion-focused coping (i.e. helplessness and fatalistic coping) was associated with psychological distress while problem/focused coping (i.e. optimistic/problem solving coping) was associated with stress related growth. The findings of the present study are consistent with previous research (Felton, Revenson, Henrichsen, 1984 ; Pruchno, Nancy, 1988; Vitalino et. all., 1990). Interestingly, fatalistic coping which is an emotion-focused coping was associated with both avoidance symptoms of distress and stress related growth. Thus, it seems that fatalistic coping is different from other emotion focused strategies. It may lead to positive effects following traumatic experiences.

In the present study, it was hypothesized that coping and social support would account for variance in outcomes after controlling for pre-accident and accident factors. This hypothesis was supported by the findings for coping but not for social support. Surprisingly, contrary to previous studies, social support did not predict distress or stress related growth. This may be due to overlapping items in both WCQ and social support scale. Because some items of WCQ are similar to some items of social support scale.

4.5. Limitations of the Study and Directions for Future Research

Longitudinal studies show that posttraumatic stress increases with the passage of the time (Blanchard & Hickling, 1998; Holeva & Tarrier, 2001). The present study is a cross-sectional study. So, to understand how intrusion and avoidance of trauma memories change over time and to describe coping as a fluid and changing phenomenon, longitudinal studies are needed. Furthermore, in order to understand the time course of the relationship between distress and growth longitudinal studies are needed.

Another limitation is that there were few severely injured participants (n=20). Thus the study needs to be replicated with a wider, heterogeneous sample of MVA survivors. The present sample had relatively higher education levels for a

Turkish sample. Thirty three percent of the survivors have high school degree and forty-six percent of them have university and higher degree. A more varied sample of MVA survivors in regards to educational levels is needed.

In the current study personal differences such as neuroticism, optimism, extraversion as pre-accident factors were not examined. In future studies, in order to understand what are the vulnerabilities or protective factors that affect post-traumatic distress and growth, more attention should be paid to personal characteristics.

The present study did not examine previous psychopathology. In the literature, previous psychopathology was found to be a significant predictor for PTSD following MVAs. Barton, Blanchard and Hickling (1996) suggested that:

> "it could be that more previous psychopathology an individual experienced, the more likely he / she will have a dissociative response to a traumatic event. The high rates of past psychopathology could be indicative of poorer coping skills or lower levels of adjustment among these individuals. Alternatively, the experience of previous psychopathology could have left the individual in a vulnerable state, which contributed to the development of acute stress disorder" (p.811). So, previous psychopathology seems to be an important variable that needs to be examined. However, this can only be investigated with longitudinal studies, as suggested previously.

Dissociative responses during the accident were not taken into account in the present study. Previous research has shown that more severe dissociative responses are correlated with greater posttraumatic stress (Marmar, Weiss, Schlenger, Fairbank, Jordan, Kulka and Hough, 1994). So, it is important to take into account previous psychopathology and dissociative responses of the survivors in further examinations.

There is an emerging body of literature which suggests that personality factors, trauma related factors and post-trauma factors should all be examined together. However, no study has examined all of these variables together to assess the relative strength of association between each predictor and posttraumatic stress symptomatology. For future research regarding posttraumatic stress and perceived growth, pre-existing individual differences and resources and the interaction between pre-trauma, trauma and posttrauma characteristics have to be examined in more detail.

4.6. Clinical Implications of the Findings

The current study highlights the need for early attention to MVA survivors. Particular attention should be adressed to survivors who are older, who report perceived threat during the accident (fear, helplessness, perceived danger, thoughts of death to oneself or another person), depression and who use helplessness and

fatalistic coping. Because these patients appear to be at risk of showing higher distress and probable posttraumatic stress disorder. Longitudinal studies are required because they enable to determine if the predictors of short-term posttraumatic stress also indicate those at risk of developing PTSD. Foa & Meadows (1997) focused on the importance of intervention after a traumatic life event to prevent chronic psychological problems.

Psychological assessment of the survivor after an MVA is seldom considered unless the accident was unusual or life-threatening, or if the survivor's symptoms are obviously debilitating. Screening for acute stress disorder and posttraumatic stress disorder is important, because early treatment can prevent the occurrence of the symptoms. According to Buttler (1999), at the initial visit, a thorough history of the accident including the survivor's reaction to it should be obtained. The police accident report can be helpful because this information enables to consider the range of physical injuries and fosters discussion of any psychological impact. It also enables to observe the survivor's reaction to the reltelling of the event.

The aim of the intervention is to enable the survivor to re-establish psychological equilibrium and return to pre-accident functioning, if possible (Kuch, Cox & Evans, 1996; McDaniel & McClelland,1986). This can often be accomplished by discussing the accident, offering the reassurance, educating the survivor about posttraumatic stress disorder, emphasing coping strategies. Survivors

can achieve some control over their symptoms by sharing details of the accident. Survivors should be reassured that PTSD is a reaction to the stress of trauma, that it follows a predictable course and that it often resolves with timely intervention (Butler, 1999). Educating survivors about the traumatic stress begins with discussing PTSD symptoms and their prevalence (Kuch et.all.,1996). This normalizes the survivor's experience and may reduce any reluctance to disclose symptoms. Because some symptoms are delayed, highlighting symptoms during the examination may prevent the survivor from over-reacting later if the symptoms do occur. About the anxiety reponses related to PTSD, the survivor can be taught relaxation techniques that he / she can practice at home (Butler, 1999).

Detection of the survivor's coping strategies is also very important. The cilinician should guide the patient for using optimistic/problem solving coping instead of helplessness or fatalistic coping to achieve increasing growth and decreasing distress levels. This may be especially important in order to reduce the survivor's distress. The present findings suggest that the survivors may benefit from efforts to mobilise their skills in coping strategies such as problem solving. Clinicians need to be careful to tailor interventions to survivor needs and requirements, and be sensitive to the personal, social, and situational factors which may alter the effectiveness of coping strategies. Clinicians can help facilitate growth, as positive growth may become a goal for therapy in addition to stabilization and restoration of healty functioning. Clinicians should encourage the

patient for taking the responsibility of the accident in order to reduce distress and helplessness.

Haddon (1968) created a matrix for the conceptualization of the etiology of injuries resulting from MVAs. This matrix enable to consider points at which to intervene before the trauma, during the trauma and after the trauma. The interventions in this matrix are directed at the vehicle, the survivor, the physical and social environment. This approach comprises primary prevention strategies, treatment and rehabilitation strategies. Pre-trauma interventions directed at the persons at risk and it includes education programs. These education programs are designed to ensure a high level of skill among drivers. Pre-trauma interventions directed at the agent vehicle include antilock brakes or designs focusing high visibility in motor vehicles. Pre-trama social environment interventions include to promote the ideas that not to driving with alcohol and lastly pre-trauma interventions directed at physical environment include to enable traffic safety, changing in roadway surfaces. Trauma interventions are related to minimizing injury in the case of event. These interventions include increasing the level of driving skills , air bags etc. Post-trauma interventions include effective rehabilitation and therapy programs and effective emergency services. This interventions may be effective on preventing before the trauma occurred or may decrease the negative aspects of traumatic experiences.

The present findings are important for the post-trauma interventions. Effective rehabilitation and therapy programs can be organized according to the survivors' pre-trauma factors (age, having social security entitlement, years of education), accidental factors (perceived treat) and post-trama factors (coping strategies).

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APPENDIX A

QUESTIONNAIRE OF THE PRESENT STUDY

Anket No: Tarih**:**

AÇIKLAMA

Bu çalışmanın amacı trafik kazalarının, kazayı geçiren bireyler üzerindeki etkilerini araştırmaktır. Bilindiği gibi, trafik kazaları ülkemizde çok yaygın bir biçimde görülmektedir. Bu kazaları geçiren kişilerin nasıl etkilendiğini anlayabilmek ve ne tür bir psikolojik destek verilmesi gerektiğini saptayabilmek için sizden alacağımız bilgiler, bizim için çok önemlidir. Vereceğiniz bilgilerin, ileride sizin durumunuzda olanlara yararlı olacağını ümit ediyoruz.

Araştırmaya katılmak tamamen gönüllüdür. Alınan bilgiler grup halinde değerlendirileceğinden, isminizi yazmanız gerekli değildir. Vereceğiniz tüm bilgiler gizli tutulacaktır. Bu nedenle sorulara olabildiğince samimi karşılıklar vermeniz ve soruları yanıtsız bırakmamanız beklenmektedir. Araştırmaya katıldığınız ve zaman ayırdığınız için şimdiden teşekkür ederiz.

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Orta Doğu Teknik Üniversitesi

Psikoloji Bölümü

</div>

TRAFİK KAZASI GEÇİREN KİŞİYİ TANIMLAYICI BİLGİLER

Bu bölümde cevaplarınızı, uygun kutuların içine çarpı koyarak veya boşluk bırakılan yere yazarak belirtiniz.

1. Cinsiyetiniz: :   Erkek   Kadın

2. Yaşınız   :_____

3. Mesleğiniz nedir?   :_____

4. Halen çalışıyor musunuz? :   Evet   Hayır

   Eğer çalışıyorsanız,

5. Şu anda ne iş yapıyorsunuz? (yaptığınız işi tam olarak

   yazın)_____

6. Medeni Durumunuz   :   Evli   Bekar   Boşanmış

                               Nişanlı/sözlü   Dul

                               Diğer_____

7. Eğitim Düzeyiniz   :   Okur-yazar değil   Ortaokul mezunu

                               Okur-yazar   Lise mezunu

                               İlkokul mezunu   Üniversite mezunu

                               Üniversite üstü

8. Herhangi bir sosyal güvenceniz var mı? : Var   Yok

9. Varsa ne olduğunu işaretleyiniz: Memur/memur emeklisi

                               İşçi/ işçi emeklisi

                               Bağkur/ bağkur emeklisi

                               Özel sigorta

                               Yeşil kart

                               Diğer_____

10. Daha önce trafik kazası geçirdiniz mi? :   Evet   Hayır

Cevabınız evet ise;

11. Daha önce kaç kez kaza geçirdiniz?_____ kez

KAZA İLE İLGİLİ BİLGİLER

Bu bölümde bütün sorulara son geçirdiğiniz kazayı dikkate alarak cevap veriniz.

1. Son kazayı geçirdiğiniz tarih

    :_____

2. Kazaya ne şekilde karıştınız?   : Yaya   Yolcu   Sürücü

3. Kazada yaralandınız mı?   : Evet   Hayır

    Cevabınız evet ise;

4. Ne derecede yaralandınız?

    Çok hafif   oldukça hafif   orta derecede   oldukça ağır

    çok ağır

5. Kazada başkaları yaralandı mı?   : Evet   Hayır

6. Kazada ölen oldu mu?   : Evet   Hayır

    Cevabınız evet ise;

7. Ölenler arasında akrabanız / arkadaşınız / yakınınız var mıydı?:

     Evet   Hayır

8. Kaza sırasında alkollü müydünüz?   : Evet   Hayır

9. Kazadan sonra herhangi bir tedavi gördünüz mü? : Evet   Hayır

    Cevabınız evet ise,

10. Tedavi sonunda: Tamamen iyileştim   Şikayetlerim devam ediyor

     Sakat kaldım

11. Kazadan dolayı hastanede toplam ne kadar süre yatarak tedavi gördünüz?

    Lütfen gün olarak belirtiniz:_____gün

12. Kaza sonrasında sosyal güvence kurumlarından herhangi bir hak, ödeme talep ettiniz mi?

                  Evet   Hayır

13. Sosyal güvence kurumlarından ödeme <u>aldıysanız</u> bu ödemeler sizce ne kadar yeterliydi?

        hiç yeterli değildi   ne yeterli, ne yetersizdi   çok yeterliydi

        yeterli değildi   yeterliydi

14. Kaza sigortaları ile ilgili olarak bir hak talep ettiniz mi?   Evet   Hayır

15. <u>Sigorta ödemesi aldıysanız</u> bu ödemeler sizce ne kadar yeterliydi?

        hiç yeterli değildi   ne yeterli, ne yetersizdi   çok yeterliydi

        yeterli değildi   yeterliydi

KAZA İLE İLGİLİ DEĞERLENDİRMELERİNİZ

Bu bölümde kaza ile ilgili değerlendirmelerinizi yansıtabilecek cümleler bulunmaktadır.

Her cümleyi okuyup sizin için ne kadar uygun olduğunu 1'den 5'e kadar "1=hiç uygun değil, 5=çok uygun" olmak üzere her cümlenin yanındaki rakamlardan yalnız bir tanesini seçerek işaretleyiniz. Bu şekilde her cümleyi okuyarak sizin için uygun bir rakamı işaretleyiniz.

	Hiç Uygun Değil	Uygun Değil	Ne uygun, Ne uygun Değil	Uygun	Çok uygun
1. Kazadan ben sorumluydum	1	2	3	4	5
2. Kaza anında çok korktum	1	2	3	4	5
3. Kaza anında kendimi çok çaresiz hissettim	1	2	3	4	5
4. Kaza bence çok tehlikeliydi	1	2	3	4	5
5. Kaza anında öleceğimi düşündüm	1	2	3	4	5
6.Kaza anında başka birinin öleceğini düşündüm	1	2	3	4	5
7. Kazanın olmasını engelleyebilirdim	1	2	3	4	5

Aşağıda trafik kazası gibi stresli bir yaşam olayından sonra insanların yaşayabileceği bazı duygu ve düşüncelerin bir listesi sunulmuştur. Her cümleyi dikkatlice okuduktan sonra, son 7 gün içerisinde bu duygu ve düşüncelerin sizin için hangi sıklıkta olduğunu lütfen aşağıdaki ölçek üzerinde belirtiniz.

	YAŞAM OLAYLARI ETKİ ÖLÇEĞİ	Her Zaman	Bazen	Nadiren	Hiçbir Zaman
1.	Düşünmek istemediğim zamanlarda da kazayı düşündüm	1	2	3	4
2.	Kazayı düşündüğümde ya da olay hatırlatıldığında, bu konunun beni üzmesine izin vermedim	1	2	3	4
3.	Kazayı belleğimden (hafızamdan) silmeye çalıştım	1	2	3	4
4.	Kaza ile ilgili anılar ve düşüncelerden dolayı uykuya dalmakta ve uyumaya devam etmekte sorunlar yaşadım	1	2	3	4
5.	Kaza ile ilgili çok yoğun duygu değişiklikleri yaşadım	1	2	3	4
6.	Kaza ile ilgili rüyalar gördüm	1	2	3	4
7.	Kazayı hatırlatan şeylerden uzak durdum	1	2	3	4
8.	Sanki kaza hiç olmamış ya da gerçek değilmiş gibi hissettim	1	2	3	4
9.	Kaza ile ilgili konuşmamaya çalıştım	1	2	3	4

10.	Kaza ile ilgili görüntüler zihnimde canlandı	1	2	3	4
11.	Başka şeyler benim kaza hakkında düşünmeyi sürdürmeme neden oldu	1	2	3	4
		Her Zaman	Bazen	Nadiren	Hiçbir Zaman
12.	Kaza ile ilgili olarak hala pek çok duygum var, ancak bunlarla hiç başa çıkmaya çalışmadım	1	2	3	4
13.	Kaza hakkında düşünmemeye çalıştım	1	2	3	4
14.	Kazayı hatırlatıcı herhangi bir şey, olayla ilgili duygularımı yeniden ortaya çıkardı	1	2	3	4
15.	Kaza hakkındaki duygularım sanki körlenmiş gibiydiler	1	2	3	4

Aşağıda insanların sıkıntılarını gidermek için kullanabilecekleri bazı yollar belirtilmektedir.Cümlelerin her birini dikkatlice okuduktan sonra, son geçirdiğiniz kaza ile ilgili bugüne kadar yaşadığınız sıkıntıları düşünerek soruları aşağıdaki ölçek üzerinde cevaplayınız. Bu yolları hiç kullanmadıysanız Hiçbir zaman, zaman zaman kullandıysanız bazen, çok sık kullandıysanız her zaman seçeneğini belirtin**.**

Stresle Başa Çıkma Yolları Ölçeği	Hiçbir zaman	Bazen	Her Zaman
1. Aklımı kurcalayan şeylerden kurtulmak için değişik işlerle uğraştım	1	2	3
2. Bir mucize olmasını bekledim	1	2	3
3. İyimser olmaya çalıştım	1	2	3
4.Çevremdeki insanlardan sorunlarımı çözmemde bana yardımcı olmalarını bekledim	1	2	3
5. Bazı şeyleri büyütmeyip üzerinde durmamaya çalıştım	1	2	3
6. Sakin kafayla düşünmeye ve öfkelenmemeye çalıştım	1	2	3
7. Durumun değerlendirmesini yaparak en iyi kararı vermeye çalıştım	1	2	3
8. Ne olursa olsun direnme ve mücadele etme gücünü kendimde hissettim	1	2	3
9. Olanları unutmaya çalıştım	1	2	3
10. Başa gelen çekilir diye düşündüm	1	2	3
11. Durumun ciddiyetini anlamaya çalıştım	1	2	3
12. Kendimi kapana sıkışmış gibi hissettim	1	2	3
13. Duygularımı paylaştığım kişilerin bana hak vermesini istedim	1	2	3

	Hiçbir zaman	Bazen	Her Zaman
14. "Her işte bir hayır var" diye düşündüm	1	2	3
15. Dua ederek Allah'tan yardım diledim	1	2	3
16. Elimde olanlarla yetinmeye çalıştım	1	2	3
17. Olanları kafama takıp sürekli düşünmekten kendimi alamadım	1	2	3
18. Sıkıntılarımı içimde tutmaktansa paylaşmayı tercih ettim	1	2	3
19. Mutlaka bir çözüm yolu bulabileceğime inanıp bu yolda uğraştım	1	2	3
20. "İş olacağına varır" diye düşündüm	1	2	3
21. Ne yapacağıma karar vermeden önce arkadaşlarımın fikrini aldım	1	2	3
22. Kendimde herşeye yeniden başlayacak gücü buldum	1	2	3
23. Olanlardan olumlu birşeyler çıkarmaya çalıştım	1	2	3
24. Bunun alın yazım olduğunu değişmeyeceğini düşündüm	1	2	3
25. Sorunlarıma farklı çözüm yolları aradım	1	2	3
26. "Olanları keşke değiştirebilseydim" diye düşündüm	1	2	3
27. Hayatla ilgili yeni bir bakış açısı geliştirmeye çalıştım	1	2	3
28. Sorunlarımı adım adım çözmeye çalıştım	1	2	3
29. Herşeyin istediğim gibi olamayacağını düşündüm	1	2	3

	Hiçbir zaman	Bazen	Her Zaman
30.Dertlerimden kurtulayım diye fakir fukaraya sadaka verdim	1	2	3
31. Ne yapacağımı planlayıp ona göre davrandım	1	2	3
32. Mücadele etmekten vazgeçtim	1	2	3
33. Sıkıntılarımın kendimden kaynaklandığını düşündüm	1	2	3
34. Olanlar karşısında "Kaderim buymuş" dedim	1	2	3
35. "Keşke daha güçlü bir insan olsaydım" diye düşündüm	1	2	3
36. "Benim suçum ne" diye düşündüm	1	2	3
37. "Allah'ın takdiri buymuş" deyip kendi kendimi teselli etmeye çalıştım	1	2	3
38. Temkinli olmaya ve yanlış yapmamaya çalıştım	1	2	3
39. Çözüm için kendim birşeyler yapmak istedim	1	2	3
40. "Hep benim yüzümden oldu" diye düşündüm	1	2	3
41. Hakkımı savunmaya çalıştım	1	2	3
42. Bir kişi olarak olgunlaştığımı ve iyi yönde değiştiğimi hissettim	1	2	3

Aşağıda trafik kazası gibi stresli yaşam olaylarından sonra insanların duygu ve düşüncelerinde meydana gelebilecek bazı değişikliklerle ilgili ifadeler vardır. Her bir ifadede yer alan durumun sizin için ne derece geçerli olduğunu belirtiniz.

Strese Bağlı Gelişim Ölçeği	Bana Hiç uymuyor	Bana biraz uyuyor	Bana çok uyuyor
1. Bana destek olan kişilerle yeni ilişkiler geliştirdim	1	2	3
2. Hayat hakkında yeni bilgiler öğrendim	1	2	3
3. Düşündüğümden daha güçlü olduğumu öğrendim	1	2	3
4. Başkalarını daha kabul edici oldum	1	2	3
5. Başkalarına verebileceğim daha çok şeyim olduğunu öğrendim	1	2	3
6. Başkalarının duygu ve düşüncelerine saygı göstermeyi öğrendim	1	2	3
7. Başkalarına karşı daha iyi olmayı öğrendim	1	2	3
8. Hayatımı nasıl yaşamak istediğimi yeniden düşündüm	1	2	3
9. Hayatta daha çok şey başarmak istediğimi öğrendim	1	2	3
10. Şimdi hayatım daha anlamlı ve doyumlu	1	2	3
11. Olaylara daha olumlu bakmayı öğrendim	1	2	3
12. Duygularımı ifade etmek için daha iyi yollar öğrendim	1	2	3
13. Herşeyin bir nedeni olduğunu öğrendim	1	2	3
14. Allah'a olan inancım arttı/gelişti	1	2	3

	Bana Hiç uymuyor	**Bana biraz uyuyor**	**Bana çok uyuyor**
15.Günlük sıkıntıların beni eskiden olduğu kadar çok rahatsız etmelerine izin vermemeyi öğrendim	1	2	3
16. Yaptıklarım için daha fazla sorumluluk almayı öğrendim	1	2	3
17.Bugün için yaşamayı öğrendim, çünkü yarın ne olacağını hiç bir zaman bilemiyorsun	1	2	3
18.Artık pek çok şeyi garanti olarak görmüyorum	1	2	3
19. Allah'a güvenim gelişti/arttı	1	2	3
20. Kararlarımı vermede çok daha özgür olduğumu hissediyorum	1	2	3
21. Başkalarına, hayat hakkında öğretebileceğim değerli şeyler olduğunu farkettim	1	2	3
22. Allah'ın bazı şeylerin olmasına neden izin verdiğini daha iyi anlıyorum	1	2	3
23. Zor bir yaşama sahip olan insanların gücünü takdir etmeyi öğrendim	1	2	3
24. Kötü bir şey olunca hemen pes etmemeyi öğrendim	1	2	3
25. Davranışlarımın sonuçları hakkında daha fazla düşünmeyi öğrendim	1	2	3
26. Olanlara daha az kızmayı öğrendim	1	2	3
27. Daha iyimser bir insan olmayı öğrendim	1	2	3

28. Hayata daha sakin bakmayı öğrendim	1	2	3
29. Başkalarının istediği gibi değil de kendim gibi olmayı öğrendim	1	2	3
30. Kendimi mükemmel olmadan da kabul etmeyi öğrendim	1	2	3
31. Hayatı daha ciddiye almayı öğrendim	1	2	3
32. Hemen vazgeçmek yerine problemleri çözmeye çalışmayı öğrendim	1	2	3
33. Hayattan daha fazla anlam çıkarmayı öğrendim	1	2	3
34. Hayattaki hedeflerimi daha iyileri ile değiştirdim	1	2	3
35. Başkalarına nasıl ulaşacağımı ve yardım edebileceğimi öğrendim	1	2	3
36. Kendine daha fazla güvenen bir kişi olmayı öğrendim	1	2	3
37. Beden sağlığıma garanti gözüyle bakmamayı öğrendim	1	2	3
38. Başkaları benimle konuşurken daha dikkatli dinlemeyi öğrendim	1	2	3
39. Yeni bilgi ve düşüncelere daha açık olmayı öğrendim	1	2	3
40. Anne-babamın yıllar önce neden bazı şeyleri söylediklerini/ yaptıklarını şimdi daha iyi anlıyorum	1	2	3
41. Başkaları ile daha dürüst bir şekilde iletişim kurmayı öğrendim	1	2	3

	Bana Hiç uymuyor	Bana biraz uyuyor	Bana çok uyuyor
42. Belirsizlikle daha iyi başa çıkmayı öğrendim	1	2	3
43. Dünyada bir etki bırakmak istediğimi öğrendim	1	2	3
44. Başkalarından yardım istemenin normal olduğunu öğrendim	1	2	3
45. Beni eskiden üzen şeylerin çoğunun, aslında üzülmeye değmeyecek şeyler olduğunu öğrendim	1	2	3
46. Kişisel haklarımı savunmayı öğrendim	1	2	3
47. Bir başkasıyla daha önceden olan ilişkim daha anlamlı bir hale geldi	1	2	3
48. Anne-babamı sadece "ebeveyn" olarak değil, birer insan olarak görebilmeye başladım	1	2	3
49. Düşündüğümden çok daha fazla kişinin bana değer verdiklerini farkettim	1	2	3
50. Bir topluluğa ait olma ve büyük bir grubun bir parçası olduğum konusunda daha güçlü bir duygu geliştirdim	1	2	3

Aşağıda aileniz, akrabalarınız, arkadaşlarınız ve komşularınızla ilişkilerinizde başvurabileceğiniz bazı davranışlar verilmektedir. Her birini dikkatlice okuduktan sonra size uygunluğunu aşağıdaki ölçek üzerinde belirtiniz.

Sosyal Destek Ölçeği	Her zaman	Bazen	Nadiren	Hiçbir zaman
1. Kişisel problemlerimi/ meselelerimi , eşimle, çocuklarımla konuşurum	1	2	3	4
2. Kararlarımı vermemde, eşim/çocuklarım bana yardımcı olur	1	2	3	4
3. Zor günlerde ve zamanlarda ailem bana destek olur	1	2	3	4
4. Sevinç ve üzüntülerimi arkadaşlarımla paylaşırım	1	2	3	4
5. Güçlükle karşılaştığım zaman arkadaşlarım bana yardım eder	1	2	3	4
6. Problemlerimi arkadaşlarımla konuşurum	1	2	3	4
7. İhtiyacım olduğu zaman akrabalarıma/ yakınlarıma danışırım	1	2	3	4
8. İşler kötüye gittiğ zaman akrabalarıma/ yakınlarıma güvenebilirim	1	2	3	4
9. Akrabalarım/ yakınlarım duygusal olarak rahatlamama yardım ederler	1	2	3	4
10. Sıkıntılarımı gidermemde komşularım bana yardımcı olurlar	1	2	3	4
11. Problemlerimi çözmek için komşularıma akıl danışırım	1	2	3	4
12. Üzüntülerimi komşularımla paylaşırım	1	2	3	4

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

1. (a) Kendimi üzgün hissetmiyorum
   (b) Kendimi üzgün hissediyorum
   (c) Her zaman için üzgünüm ve kendimi bu duygudan kurtaramıyorum.
   (d) Öylesine üzgün ve mutsuzum ki dayanamıyorum.

2. (a) Gelecekten umutsuz değilim
   (b) Geleceğe biraz umutsuz bakıyorum
   (c) Gelecekten beklediğim hiçbir şey yok
   (d) Benim için bir gelecek yok ve bu durum düzelmeyecek

3. (a) Kendimi başarısız görmüyorum
   (b) Çevremdeki bir çok kişiden daha fazla başarısızlıklarım oldu sayılır
   (c) Geriye dönüp baktığımda çok fazla başarısızlığımın olduğunu görüyorum.
   (d) Kendimi tümüyle başarısız bir insan olarak görüyorum.

4. (a) Herşeyden eskisi kadar zevk alabiliyorum
   (b) Herşeyden eskisi kadar zevk alamıyorum
   (c) Artık hiçbir şeyden gerçek bir zevk alamıyorum
   (d) Bana zevk veren hiçbir şey yok. Herşey çok sıkıcı

5. (a) Kendimi suçlu hissetmiyorum
   (b) Arada bir kendimi suçlu hissettiğim oluyor
   (c) Kendimi çoğunlukla suçlu hissediyorum
   (d) Kendimi her an için suçlu hissediyorum

6. (a) Cezalandırıldığımı düşünmüyorum
   (b) Bazı şeyler için cezalandırılabileceğimi hissediyorum
   (c) Cezalandırılmayı bekliyorum
   (d) Cezalandırıldığımı hissediyorum

7. (a) Kendimden hoşnutum
   (b) Kendimden pek hoşnut değilim
   (c) Kendimden hiç hoşlanmıyorum
   (d) Kendimden nefret ediyorum

8. (a) Kendimi diğer insanlardan daha kötü görmüyorum
   (b) Kendimi zayıflıklarım ve hatalarım için eleştiriyorum
   (c) Kendimi hatalarım için çoğu zaman suçluyorum
   (d) Her kötü olayda kendimi suçluyorum

9. (a) Kendimi öldürmek gibi düşüncelerim yok
   (b) Bazen kendimi öldürmeyi düşünüyorum, fakat bunu yapmam
   (c) Kendimi öldürebilmeyi isterdim
   (d) Bir fırsatını bulsam kendimi öldürürüm

10. (a) Her zamankinden daha fazla ağladığımı sanmıyorum
    (b) Eskisine göre şu sıralarda daha fazla ağlıyorum
    (c) Şu sıralar her an ağlıyorum
    (d) Eskiden ağlayabilirdim, ama şu sıralar istesem de ağlayamıyorum

11. (a) Her zamankinden daha sinirli değilim
    (b) Her zamankinden daha kolayca sinirleniyor ve kızıyorum
    (c) Çoğu zaman sinirliyim
    (d) Eskiden sinirlendiğim şeylere bile artık sinirlenemiyorum

12. (a) Diğer insanlara karşı ilgimi kaybetmedim
    (b) Eskisine göre insanlarla daha az ilgiliyim
    (c) Diğer insanlara karşı ilgimin çoğunu kaybettim
    (d) Diğer insanlara karşı hiç ilgim kalmadı

13. (a) Kararlarımı eskisi kadar kolay ve rahat verebiliyorum
    (b) Şu sıralar kararlarımı vermeyi erteliyorum
    (c) Kararlarımı vermekte oldukça güçlük çekiyorum
    (d) Artık hiç karar veremiyorum

14. (a) Dış görünüşümün eskisinden daha kötü olduğunu sanmıyorum
    (b) Yaşlandığımı ve çekiciliğimi kaybettiğimi düşünüyor ve üzülüyorum
    (c) Dış görünüşümde artık değiştirilmesi mümkün olmayan olumsuz değişiklikler olduğunu
       hissediyorum.
    (d) Çok çirkin olduğumu düşünüyorum

15. (a) Eskisi kadar iyi çalışabiliyorum
    (b) Bir işe başlayabilmek için eskisine göre kendimi daha fazla zorlamam gerekiyor
    (c) Hangi iş olursa olsun, yapabilmek için kendimi çok zorluyorum
    (d) Hiçbir iş yapamıyorum

16. (a) Eskisi kadar rahat uyuyabiliyorum
    (b) Şu sıralarda eskisi kadar rahat uyuyamıyorum
    (c) Eskisine göre 1 veya 2 saat erken uyanıyor ve tekrar uyumakta zorluk çekiyorum
    (d) Eskisine göre çok erken uyanıyor ve tekrar uymakta zorluk çekiyorum

17. (a) Eskisine kıyasla daha çabuk yorulduğumu sanmıyorum
    (b) Eskisinden daha çabuk yoruluyorum
    (c) Şu sıralar neredeyse herşey beni yoruyor
    (d) Öyle yorgunum ki hiçbir şey yapamıyorum

18. (a) İştahım eskisinden pek farklı değil
    (b) İştahım eskisi kadar iyi değil
    (c) Şu sıralarda iştahım epey kötü
    (d) Artık hiç iştahım yok

19. (a) Son zamanlarda pek fazla kilo kaybettiğimi sanmıyorum
    (b) Son zamanlarda istemediğim halde üç kilodan fazla kaybettim
    (c) Son zamanlarda istemediğim halde beş kilodan fazla kaybettim
    (d) Son zamanlarda istemediğim halde yedi kilodan fazla kaybettim
        Daha az yemeğe çalışarak kilo kaybetmeye çalışıyorum   Evet ( )   Hayır ( )

20. (a) Sağlığım beni pek endişelendirmiyor
    (b) Son zamanlarda ağrı, sızı, mide bozukluğu, kabızlık gibi sorunlarım var
    (c) Ağrı, sızı gibi bu sıkıntılarım beni epey endişelendirdiği için başka şeyleri düşünmek zor geliyor
    (d) Bu tür sıkıntılar beni öylesine endişelendiriyor ki, artık başka birşey düşünemiyorum

21. (a) Son zamanlarda cinsel yaşantımda dikkatimi çeken birşey yok
    (b) Eskisine oranla cinsel konularla daha az ilgileniyorum
    (c) Şu sıralar cinsellikle pek ilgili değilim
    (d) Artık cinsellikle hiçbir ilgim kalmadı

APPENDIX   B

Factor Structure of the Ways of Coping Questionnaire (WCQ)

The factor structure of WCQ was examined by principal component analysis (PCA) with varimax rotation. The initial analysis, employing an eigenvalue of 1.00 as the criterion resulted in 9 factors explaining 61 % of the variance. Further analysis with restrictions on the number of factors suggested that a 3-factor solution explaining 42 % of the total variance, produced the clearest solution. Each item was included under the factor on which it had the highest loading. A factor loading of .35 was employed as the criterion to determine the item composition of the factors. Two items did not meet the criterion and were excluded from further analysis. Twenty items loaded on the first factor which was labeled as "optimistic / problem solving coping". Cronbach's alpha reliability coefficient for internal consistency of the this subscale was found to be .91. Eight items loaded on the second factor which was labeled as " fatalistic coping" and its Cronbach's alpha reliability coefficient was found to be .87. Twelve items loaded on the third factor which was labeled as "Helplessness coping" and Cronbach's alpha reliability coefficient of this subscales was found to be .81.   Mean factor scores were calculated by summing up the answers to the items of each factor and then by dividing them by the number of the items. The item composition of the factors, the factor loadings of the each item and

Cronbach's alpha reliability coefficients of the factors are presented in Table 1. The
internal consistency of the whole scale was found to be 91.

**Table 1. Item composition of the three WCQ Factors, Their factor loadings,
Percentage Variance Explained and Cronbach's Alpha Values**

Item no Item	Factor Loadings		
	Factor 1	Factor 2	Factor 3
Factor 1 : Optimistic/ Problem solving coping	**Factor 1**	Factor 2	Factor 3
Explained variance 25 % ; Cronbach alpha = .91			
39. I inspired to do something creative about the problem	**.73**	.00	.17
22. I stood my ground and fought for problems	**.71**	.22	-.11
7. I tried to analyze the problem	**.71**	.24	.00
3. I tried to be optimistic	**.68**	.00	.00
31. I made a plan of action and followed it	**.71**	.00	.00
38. I tried not to act hastly	**.68**	.24	.00
25. I tried to find new solutions	**.67**	.00	.20
23. I tried to get something positive from the situation	**.67**	.20	.00
28. I just concentrated on what what I have to do next	**.66**	.19	.19
8. I maintained pride	**.65**	.18	-.18
41. I tried to be assertive and defended my rights	**.60**	.00	.00
42. I changed or grew as a person	**.57**	.00	.00
19. I knew what have to be done,so I doubled my efforts	**.56**	.00	.24
11. I tried to understand the seriousness of the situation	**.53**	.24	.22
5. I tried to make light of the situation	**.52**	.34	-.24
6. I tried to think calmly and not to get angry	**.52**	.30	-.11
18. I preferred to share my troubles to keep them inside me	**.50**	.24	.14
27. I tried to adapt a new perspective	**.46**	.29	.30

(Table 1. Cont.)

	Factor 1	Factor 2	Factor 3
9. I tried to forget the whole thing	**.45**	.20	.00
4. I expected others to help me in solving my problems	**.35**	.35	.34

Factor 2 : Fatalistic Coping	Factor 1	**Factor 2**	Factor 3
Explained variance 10 % ; Cronbach alpha = .87			
34. I thought what happened was my fate	.11	**.82**	.13
37. I believed that God knows the best	.13	**.80**	.13
24. I believed that it was my destiny and it doesn't change	.00	**.77**	.18
15. I prayed for help from the God	.23	**.71**	.12
20. I thought that it depends on how it grows	.23	**.67**	.00
14. I thought that everything in life has a positive side	.28	**.66**	.00
16. I tried to be happy with what I have had	.47	**.51**	.00
10. I have gone with fate; sometimes I have bad luck	.15	**.47**	.00

Factor 3 : Helplessness Coping	Factor 1	Factor 2	**Factor 3**
Explained variance 7 % ; Cronbach alpha = .81			
35. I thought if only I were stronger	.00	.17	**.69**
2. I have hoped for a miracle	.00	.00	**.64**
12. I have felt helpless	.00	.20	**.63**
17. I couldn't help thinking about the problem	.00	.13	**.63**
32. I stopped fighting	-.14	.00	**.61**
36. I did not understand my fault	.12	.13	**.60**

(Table 1. Cont.)

33. I thought that I made the problems	.00	.00	**.55**
26. I wish I had changed what happened	.00	.00	**.49**
1. I turned to work or another activity to make my mind off things	.17	-.15	**.49**
29. I accepted the next best thing to what I want	.23	.00	**.44**
40. I thought that I created the problems	.00	.00	**.44**
13. I expected understanding from people whom I share my feelings	.36	.17	**.39**
Items excluded			
30. I gave money to poor people to escape my trouble	.00	.23	.34
21. I asked friends before I took an action	.23	.19	.28

The correlations between the whole scale and subscales and inter-correlations among the subscales were examined and found to be significant. The results are presented in Table 2.

Table 2. Pearson Correlation Coefficients Among the Scale and Subscales of WCQ

Scales	1	2	3	4
1.WCQ		.87*	.73*	.61*
2 .Optimistic/problem solving coping			.52*	.27*
3. Fatalistic coping				.25*
4. Helplessness coping				

*$p < .05$