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**Gender differences in psychological distress, coping, social support and related variables following the 1995 Dinar (Turkey) earthquake.**

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## **Abstract**

This study examined gender differences in psychological distress, coping strategies and social support subsequent to the 1995 Dinar (Turkey) earthquake. The study also aimed to examine variables related to distress levels for females and males. A sample of 315 adult survivors living in Dinar were administered a questionnaire focusing on socio-demographic variables, earthquake impact, psychological distress, coping strategies, perceived social support and life events since the earthquake, in February 1997, 16 months after the earthquake. The findings of the study revealed that women reported greater distress as compared to men. There were gender differences in reported coping strategies. Problem solving/optimistic approach was the most frequently used coping strategy for men, whereas for women fatalistic approach was the most frequently employed coping strategy. Perceived social support did not differ for women and men. Both groups perceived highest support from the family and spouse. Women reported experiencing more negative life-events since the earthquake. The results of the regression analyses showed that for women, perceived threat during the earthquake, the use of helplessness coping and lack of belief in control over the future were positively related to distress levels. On the other hand, for men the number of negative life-events experienced since the earthquake and helplessness coping were related positively, whereas the use of problem solving/optimistic approach was related negatively with distress levels. The results are discussed within the cognitive theory of stress and coping and implications for disaster mental health programs are offered.

Natural disasters, like earthquakes have extensive psycho-social impacts on the affected populations (Durkin & Thiel,1993). Survivors of natural disasters have to adapt to drastically altered physical environments, economical losses, disruption of activities and homelessness. They also have to cope with the emotional trauma of witnessing loss of lives, injury and property loss. Furthermore, in disasters like earthquakes that have a likelihood of recurrence, the affected populations have to live with the threat of recurrence (Baum, Fleming, & Davidson,1983; Rubonis & Bickman, 1991; Zhang & Zhang, 1991). One of the most extensively investigated psychological consequences of disasters has been stress symptoms of the populations. Some characteristics of the victims and the disaster event were found to be related to post traumatic stress responses. Greater stress is experienced by women and by those who had psychological problems prior to the disaster event (Nolen-Hoeksema & Morrow, 1991; Karanci & Rüstemli, 1995; Palinkas, Petterson, Russel, & Downs, 1993). The distress experienced by the victims is related to the unexpectedness, the scope, the intensity and the extent to which a disaster is general to a community (Baum et al., 1983). Although distress reactions are quite common among disaster victims, they tend to diminish over time (Rubonis & Bickman, 1991). The continuation of psychological distress was found to be related to the adversities following the disaster , such as lack of housing and break up or displacement of families (Goenjian, 1993).

The psychological distress experienced by the survivors can also be examined within the cognitive theory of stress and coping (Folkman, 1994; Folkman & Lazarus, 1985). According to this model, stress is a bi-directional process between the person and the environment. The degree of stress experienced by the person is mainly determined by the cognitive evaluation of the event and the coping resources available to the individual (Coyne, Aldwin, & Lazarus, 1981). According to Lazarus (1993), an event requiring an adaptation on the part of the person gives rise to two forms of appraisal. The primary appraisal involves the evaluation of the seriousness of the demand and the

secondary appraisal involves the evaluation of one's resources in meeting the demand. Coping resources can take many forms, like coping skills, social support and sense of control (Matheny, Aycock, Pugh, Curlette, & Canela, 1986). Generalized belief about control is one of the personal resources affecting the type of coping that will be used in stressful encounters. Internal locus of control combined with social support may function as a buffer against stress (Sarason, Levine, Basham & Sarason, 1983). Similarly, the perceived existence of supportive social networks is often cited as a buffer against stress (Sarason et al., 1983, Pittman & Lloyd, 1997). Finally, coping which can be defined as the cognitive and behavioral efforts to deal with demands seems to influence the stress experienced (Folkman & Lazarus, 1986). An important dimension of coping is the problem-oriented and emotion-focused coping. It has been reported that emotion-focused coping, which includes efforts to regulate emotional states, are related to poorer coping, whereas problem-focused coping, which involves efforts to recognize and directly deal with stressors, is related to better adjustment (Blake, Cook & Keane, 1992; Jenkins, 1997; Nezu & Carnevale, 1987).

The main aim of the present study was to examine gender differences in the distress experienced by the survivors of the Dinar 1995 earthquake and to explore the relationship of some socio-demographic and earthquake experience related variables, negative life events since the earthquake, ways of coping and perceived social support with the distress experienced by the survivors.

## **METHOD**

### **The Study Area and The October 1, 1995 Dinar Earthquake**

Dinar is located at the juncture of the Aegean, Central Anatolian and Mediterranean regions in Turkey. An earthquake of magnitude  $M_L=5.9$  struck Dinar on October 1 (Sunday), 1995 at 17.57 p.m. The mainshock of the earthquake was preceded with foreshocks for four days, the largest one having a magnitude of 4.7. These foreshocks initiated structural damage in many buildings that were then severely aggravated by the mainshock. Numerous

aftershocks were recorded in the following days, which continued for more than three months. Dinar earthquake caused a death toll of 90, and more than 200 injuries. The economical losses were estimated at 250 million USD.

The total population affected by the earthquake in the region is 100,000 and the number of residential units is about 24,000. According to the damage survey conducted in the affected region after the earthquake, out of 24,000 residential units, 4340 (18%) were heavily damaged, 3712 (15%) were moderately damaged, 6104 (25%) were lightly damaged and the remaining 9844 (41%) were undamaged (Sucuođlu, Nurtug, Ergunay & Gencoglu, 1997). Since 4340 units were either collapsed or severely damaged in Dinar, a death toll of 90 might be considered as less than expected (Alexander, 1996). The foreshocks in the preceding four days of the main shock considerably reduced the death toll because many residents had already left their houses and/or the city before October 1 by fear and expectation of a big quake.

According to the disaster law in Turkey, the Turkish governments are responsible for the provision of disaster housing for the families who lost their homes during the earthquake. The families receiving aid from the government either as damage compensation or disaster housing is entitled to pay back these long term loans with very low interest rates. After the Dinar earthquake new disaster houses were constructed and distributed to their owners exactly one year after the earthquake. In the meantime the right holders were given a monthly rental aid.

## **Participants**

Participants were 315 adult residents (165: 52.4% females and 150: 47.6% males) of Dinar. The selection of the sample involved the application of certain criteria in order to sample from various sectors of the community. The criteria were applied for gender (nearly equal representation of males and females), residence in particular types of houses (i.e.; "disaster houses" constructed after the earthquake, houses that had moderate, light and no damage from the 1995 earthquake) and work status (self employed, blue collar wage-workers, White collar state employees, unpaid family workers and

unemployed). Since the majority of women living in Dinar are housewives the great majority of the female sample (68%) was selected from the 26 residential neighborhoods in Dinar on the basis of the above mentioned four types of housing. Since almost all men are out of their homes during the day it was not possible to reach them at home during the day. Therefore, the majority of the male sample was selected on the basis of status at work and interviewed either at their work sites or in various public places. It is important here to note that at the time of the study, which was 16 months after the earthquake, although no reliable figures were available, it was reported by the local authorities that a sizable portion of the community was still out of Dinar. Thus, the sample is selected from those earthquake survivors who were presently living in Dinar.

Of the sample, 31.7 % were living in government built disaster houses, 22.5 % in houses that had no damage from the 1995 earthquake, 27 % in lightly damaged and finally 15.9 % in moderately damaged and strengthened houses.

The mean age of the respondents was 34.3 (s.d = 11.48) and the mean number of years of education was 8.3 (s.d= 3.73). The mean household size was 4 persons. Ninety per cent of the respondents stated that they were in Dinar during the earthquake. 70.8% of the sample were born in Dinar and 72.4 % were married. Sixty-eight per cent of the female sample were housewives and other non-working women at home, and the rest were governmental employees (16.3 %), wage workers (10.3 %), self-employed (2.5 %) or unpaid family workers (2.5 %). Of the male sample, 30.6 % were governmental employees, 33.% were self-employed, 22.8 % were wage workers, 5.3% were unpaid family workers and only 8% were unemployed.

### **Instrument**

Data was collected by a questionnaire developed for the purposes of the present study. A pilot study using in-depth and focus-group interviews with key community members was undertaken in Dinar before the questionnaire was developed. The aim was to derive important dimensions and attitudes towards the earthquake event and its management. The questionnaire was composed of different parts focusing on socio-demographic characteristics of the subject and

the household members; the earthquake experience; life conditions after the earthquake; losses and difficulties due to the earthquake; scales to assess ways of coping with stress; psychological distress symptoms; negative life events; perceived social support; evaluations of their current houses, neighborhoods and municipal services, and finally attitudes and beliefs on mitigation and preparedness. Only data related to psychological distress, ways of coping, life events and social support will be presented in the present paper.

Psychological distress was measured by using a 40 items symptom check list (Symptom Check List- Revised; SCL; Derogatis & Cleary, 1977) which was previously translated and used with the survivors of the Erzincan, Turkey, earthquake (Karanci & Rustemli, 1995; Rüstemli & Karanci, 1996). This scale has 40 items tapping various distress reactions in the general population. The items tap somatic symptoms, fear and anxiety, depression and anger/irritability. Respondents were asked to rate each item for the degree of distress it caused within the past two weeks on a three point scale (1= not at all; 2= a little 3= a lot). Thus, the scale measures currently experienced distress symptoms (Possible Score Range: 1-120).

Ways of coping was assessed by using the Turkish adaptation of the Ways of Coping Questionnaire (WCQ)(Folkman & Lazarus, 1985; Siva, cited in Uzman, 1990). In the adaptation of the questionnaire eight new items tapping fatalism and superstition, which were thought to be relevant to the Turkish culture were added to the original 66 items of the questionnaire. For the purposes of the present study the 74 items of the adopted scale were reduced to sixty-one items by two judges experienced in research in disaster stricken communities. In addition to item reduction, in order to increase the ease of responding the response format was changed from four points to three points scale (1 = never; 2 = sometimes; 3 = always). The scale was tested in a pilot study and one item was further excluded due to difficulties in comprehension. Details of the scale are given in the results section.

Negative life events experienced by the participants since the earthquake was measured by a nine items scale (Karanci,1997). The participants were asked to report whether they experienced the listed events (death of spouse;

divorce; death of a close relative; serious illness in themselves; serious illness in family members; serious problems experienced by children or spouse; problems with the family; serious financial problems; loss of job in the family; serious psychological problems in themselves) (Yes = 1; No = 0). Total negative life events score was the sum of the individual items (Range: 0-9). The Cronbach alpha reliability coefficient for the scale was .61.

Perceived social support was measured by a twelve items scale, tapping the degree of perceived social support from the spouse/family, relatives, neighbors and friends (Karanci, 1997). Participants were asked to rate each item on a 4-point Likert scale (1 = never; 4 = always). Details of the scale are given in the results section.

## **Procedure**

Data collection was conducted by 11 trained undergraduate and graduate students from the Departments of Psychology and Sociology of the Middle East Technical University, Ankara, Turkey in February, 1997, sixteen months after the earthquake. The interviewers went either to the houses or work places of the respondents and individually administered the questionnaires as structured interviews with a few open ended questions and recorded the replies themselves. The 26 neighborhoods of Dinar and different work sites were assigned to different interviewers. They were instructed to interview only one adult from each household and to try to sample from different buildings and streets in the neighborhood. The administration of each questionnaire took about approximately 45 minutes. Data was analyzed by using the SPSS program.

## **Results and Discussion**

The results on psychological distress, ways of coping, social support, and finally the predictors of distress will be presented in separate sections.

## **Psychological Distress**

Responses to the SCL-40 were subjected to factor analysis employing principal components varimax rotation. The initial analysis, employing an eigenvalue of 1.00 as the criterion, resulted in 10 factors explaining 58% of the variance. Further analysis with restrictions on the number of factors extracted suggested that a 4-factor solution would serve the present purpose best. These factors accounted for 40% of the total variation. A factor loading of .35 was employed as the criterion for determining the item structures of these factors. Three items did not meet the criterion and were excluded from further analysis. The remaining thirty-eight items were included under the factor on which they had the highest loading. Mean factor scores were simply the sum of the responses to the items of the factors divided by the number of items. Table 1 shows the item composition of the factors, the factor loadings of each item and the Cronbach alpha reliability coefficients. The Cronbach alpha reliability of the whole scale was  $\alpha = .92$ .

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Insert Table 1 here

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Total distress score was obtained by summing up the responses to the 40 items of SCL-40 ( $M = 64.77$ ,  $SD = 14.10$ ,  $min. = 40$ ,  $Max. = 120$ ). When general distress level is considered, women's mean ( $M = 1.75$ ,  $SD = .35$ ) distress scores were significantly higher than men's scores ( $M = 1.46$ ,  $SD = .28$ ,  $t(310) = 8.09$ ,  $p < .001$ ).

To examine possible gender differences in the four factors, a 2 (gender) by 4 (somatization; depression; phobic anxiety; hostility/irritability) analysis of variance (ANOVA), with repeated measures on SCL-40 factors was conducted. The results revealed that the distress ( $F(3, 933) = 159.15$ ,  $p < .001$ ), gender ( $F(1, 311) = 55.52$ ,  $p < .001$ ) main effects and the gender by SCL-40 factors interaction ( $F(3, 933) = 3.55$ ,  $p < .05$ ) were significant. Table 2 presents the means for the SCL-40 scores for females and males.

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Insert Table 2 here

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According to the results of the Tukey Honestly Significant Difference test (Tukey-HSD for unequal N's), women's mean scores on all factors were significantly higher than the scores of men. As can be seen from table 2, hostility/irritability is the most distressing symptom for both females and males. Although the hostility/irritability score of females is significantly higher than males, the difference between them seem to be less than that observed for other subscales.

### **Coping Strategies**

The responses to the items of the WCQ were subjected to factor analysis using principal components with varimax rotation. Initially, 21 factors explaining 63 per cent of the variation were obtained. Further analysis with restrictions on the number of factors revealed that five factors explaining 29.1 per cent of the variance produced the clearest solution. Item loadings above .35 on each factor were chosen. Only one item with .34 loading under Social Support factor ("I talk to someone to find out more about the situation") was not excluded because of its theoretical fit into the factor. Eleven items did not meet the criterion and were excluded from further analysis. Remaining fifty items were included under the factor with the highest loading.

Table 3 presents the five factors, their items, factor loadings and the Cronbach alpha reliability coefficients. Cronbach alpha reliability of the whole scale was .76. The inter correlations of the subscales varied between .51 and .78.

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To examine possible gender differences in coping strategies, a 2 (gender) by 5 (coping: problem solving/optimistic; fatalistic approach; helplessness; social support; escape) ANOVA, with repeated measures on

WCQ factors was conducted. Results of this analysis revealed a significant main effect for coping ( $F(4, 1176) = 129.01, p < .001$ ) and gender by coping factors interaction was also significant ( $F(4, 1176) = 14.73, p < .001$ ). Means and standard deviations of the WCQ factors for females and males are presented in table 4.

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Results of post-hoc comparisons by using Tukey-HSD indicated that men's mean score on helplessness approach was significantly lower than the mean scores of all coping types of men and women. While women obtained highest score on fatalistic approach type of coping, men's highest score was on problem solving coping strategy. Men's problem solving/optimistic score was not significantly different from their score on the fatalistic approach. There are no significant difference between groups in the frequency of the use of seeking social support and escape type of coping strategies.

### **Social Support Scale**

As a result of factor analysis employing principal components, varimax rotation employing the eigenvalue of 1.00 as the criterion in the initial analysis, four sub-scales explaining 74% of total variation was obtained. These factors were named as social support from neighbors, from relatives, from friends, from family members and spouse. Cronbach alpha reliability of the whole scale is .82. Composition of factors, factor loadings of each item and the Cronbach alpha reliability coefficients of the factors are presented in table 5.

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In order to examine possible gender difference in social support factors,

a 2 (gender) by 4 (social support from: neighbors; relatives; friends; family/spouse) ANOVA with repeated measures on Social Support Scale factors was conducted. The results revealed that social support main effect ( $F(3,834) = 123.58, p < .001$ ) and gender by social support interaction was significant ( $F(3,834) = 2.92, p < .05$ ). Table 6 presents the means of social support factors.

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Results of post-hoc comparisons by using Tukey-HSD indicated that, there is no significant difference between males and females with respect to the level of perceived social support from neighbors, relatives, friends and family members/spouse. Both women and men obtained highest score on social support from family/spouse factor. The mean scores of social support from neighbors were significantly lower than all other social support resources for both females and males.

### **Predictors of Distress**

Initially a correlational analysis was conducted for determining the potential variables that can be used as predictor variables for distress levels. The scores on the five factors of the WCQ, four factors of the social support scale, belief in control of one's future life (measured by a single question: "Do you believe that you can exert control over your life in the future?"; 1 = not at all; 4 = very much so), total negative life events since the earthquake and main socio-demographic variables such as age, gender (1 = women, 2 = men), years of education, current employment status (employment: 1 = currently employed, 2 = unemployed) were used. In addition to these variables, two variables reflecting earthquake exposure were created; degree of threat perception during the earthquake and loss of property. In degree of threat perception, responses to three questions were summed, these were "At the time of the earthquake, did you think that you may die due to the earthquake?" (1 = no, 2 = yes), "At the time of the earthquake, did you think that someone in your family may die due to

earthquake?” (1 = no, 2 = yes) and “Did you see any death body or a heavily injured person right after the earthquake?” (1 = no, 2 = yes). For loss of property, two questions that aimed to assess the degree of damage to the house where the respondent was living at the time of the earthquake (1 = not damaged, 4 = heavily damaged /destroyed) and amount of loss of property (1 = no loss, 4 = great amount) of the person, were summed.

The correlational analysis showed that total distress had significant positive correlations with helplessness coping style and negatively related to problem solving and escape styles of coping. Belief in future control was negatively related to the total distress level. Distress level was positively correlated with number of negative life events experienced since the earthquake and employment status. Among the social support scale factors, only social support received from relatives was negatively correlated with the level of the distress. While the degree of threat perception was positively related to the distress, amount of loss did not correlate with the distress level.

In order to examine the variables that are related to the distress levels separate multiple regression analysis was conducted for females and males. In the light of Pearson correlation results, only variables which had a significant correlation with distress were used as the predictor variables. Total distress level, which was the sum of responses to the SCL-40, was the dependent variable. Independent variables were entered in five steps. In the first step the current employment status was included (1 = currently employed, 2 = unemployed). In the second step among the variables reflecting earthquake exposure, perception of threat was entered. In step three, social support from relatives factor of social support scale was entered. Scores on helplessness coping, escape, and problem solving/optimistic types of coping strategies were included in step four. Finally, in step five, total score that the person received from negative life events scale and one's belief of future control of his/her own life were entered. An analysis of gender differences in the predictor variables not presented previously showed that men had a higher belief in control ( $M = 2.96$ ) as compared to women ( $M = 2.38$ ). Women reported more negative life events ( $M = 2.01$ ) than men ( $M = 1.60$ ). Men and women did not differ in their threat

perceptions.

The results of the regression analyses for females and males are presented in table 7.

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Insert table 7

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According to the results of multiple regression analysis, for women, eight variables explained 24% of the variance in general distress level. For females, perception of threat and helplessness coping style were positively, whereas belief in future control was negatively related to distress level. For men, 43% of the variance was explained by eight variables. In males, the number of negative life events and helplessness type of coping were related to higher levels of distress. On the other hand, more frequent use of problem solving/optimistic type of coping was negatively related to the distress level.

## **DISCUSSION**

The present study focused on gender differences in the long term distress experienced by the survivors of the Dinar 1995 earthquake and explored the relationship of some socio-demographic and earthquake experience related variables, negative life events since the earthquake, ways of coping and perceived social support with the distress experienced by the survivors.

The results revealed a number of gender differences in distress, coping strategies and variables that relate to distress levels. Women experienced more distress as compared to men on all factors of the SCL-40, and on total distress. This finding is in line with the literature pointing to greater degree of distress among women (Rubonis & Bickman, 1991; Karanci & Rüstemli, 1995; Uçman, 1990). However, since the study was undertaken sixteen months after the earthquake, and since a non-disaster exposed control group was not utilized it is not possible to interpret this difference as a gender difference in response to the earthquake event.

The gender differences in coping showed that males and females both used the problem solving/optimistic and fatalistic approaches the most. However, men used the problem solving/optimistic strategies more frequently than women, whereas women used the helplessness approach more frequently than men. They did not differ in the use of the fatalistic approach. In line with the literature, men's most frequently used coping style was the problem solving/optimist approach (Ptacek, Smith, & Zanas, 1992). On this style men's scores were significantly higher than helplessness, social support and escape styles.

For both men and women the most frequently used coping styles were problem solving/optimistic and fatalistic styles. Although this result supports the use of emotion and problem focused strategies together (Folkman & Lazarus, 1986; Uçman, 1990; Sahin & Durak, 1995), it may also point to cultural influences. The use of fatalistic style can be related to cultural factors. At least for this specific sample the frequent use of fatalistic style of coping might be related with cultural values and Islamic religious beliefs. Some items of the fatalistic approach of coping such as, "I believe in that god knows the best", "I try to be happy with what I have", "I go along with fate sometimes I just have bad luck" have similarities with Islam which is the religion of the sample. People might be using these coping strategies due to their religious beliefs. Since the faith of Islam is not submissive, fatalistic approach of coping does not necessarily imply being submissive or helpless. Fatalistic approach may also function for the regulation of emotions and enable emotional relief (Silver & Wortman, 1980; cited in Folkman, 1984, p. 844). Thus, fatalistic approach may facilitate the use of problem solving strategies. Theoretically, the effectiveness of problem focused coping depends on the success of emotion focused coping. "Otherwise, heightened emotions may interfere with the cognitive activity necessary for problem focused coping" (Folkman 1984, p. 845). The more frequent use of problem solving strategies by men may also be related to the types of events exposed and their appraisal by men and women. It is known that the use of problem focused coping increases when the situation is appraised as changeable and when direct action is required to control troubled person

environment relationship and emotion focused coping when the situation is appraised as stable or resistant to change (Folkman, Lazarus, Gruen, & DeLongis, 1986). The appraisal of events that women have to cope might be in such a way that, they require regulation of emotions mainly. Men on the other hand might have such appraisals that require direct action and active problem solving such as financial or work related problems. When the negative life events reported by males and females were compared, the total score of women was significantly higher than the total score of men. With respect to the individual items of negative life events scale, there were gender differences only in experiencing "severe psychological or emotional problems", a greater percentage of women endorsing this event (35.8% women ; 20 % men; Chi Sq= 9.62; p <0.05). The higher frequency of the use of the helplessness approach by women may be related to their appraisal of this event as resistant to change or uncontrollable. Such an appraisal might have led them to cope not instrumentally but emotionally. Therefore, without knowing the appraisals for the specific events, we can not draw a clear conclusion about why men and women differ in their coping approaches. In future research, a more fine grained analyses focusing on negative events, their appraisals and specific coping approaches may provide a better understanding of the noted gender differences.

For perceived social support there were no gender differences. However, for both men and women support from the spouse/family was the highest, and from the neighbors was the lowest.

The examination of the predictors of distress levels for females and males revealed a number of differences. For females helpless coping approach, degree of threat perception in the earthquake and lack of belief in future control appeared as significant variables. Whereas for men, helpless approach, problem solving/optimistic styles of coping and number of negative life events experienced after the earthquake were significant predictors of distress level. Thus, apart from helpless coping, which was common for males and females, there appeared to be different variables related to current distress.

The results suggest that for women degree of threat perception, which includes exposure to a death body or heavily injured person in the earthquake

and having thoughts of dying or the death of someone among family members related to higher levels of distress. It is important to note that males and females did not differ in their threat perceptions. However, this perception seems to be related to current distress only in women. In future research it will be fruitful to explore whether men and women differ in their frequency of recall of the earthquake event and how they process their earthquake memories over time. The differences may be related to more ruminative style of responding in women which has been found to be related to distress experienced (Nolen-Hoeksema & Morrow, 1991). As perception of threat can be evaluated as a primary appraisal process, it can be expected that threat perception may lead to negative emotions provided that the person lacks necessary personal resources and coping options. The present results seem to suggest that for women, threat perception combined with helplessness coping strategy and lack of belief of future control leads to higher levels of distress.

For men, the significant predictors were the total number of negative life events experienced since the earthquake, helplessness and problem solving/optimistic ways coping. If we consider the negative life events experienced as threat or loss perception in the primary appraisal process, it might be concluded that while helplessness coping style may lead to increases in distress level, problem focused coping strategies may affect distress level inversely.

Helplessness coping style was the only common significant predictor of distress for males and females. Helplessness type of coping as an emotional focused coping strategy is difficult to distinguish from the process of secondary appraisal. This type of coping may not only include the behavioral and cognitive efforts but also emotional state resulting from the appraisals. The results showed that coping is an important psychological variable relating to psychological distress. Helplessness type of coping contributes to distress regardless of gender, whereas problem solving/optimistic approach is a favorable one for men. In future research it will be fruitful to focus on procedures that may decrease the helpless approach and to explore intervention methods that can increase beliefs in control and the use of problem oriented coping. It may be valuable to

assess the impact of disaster preparedness training on coping strategies with specific disaster related events. For future studies in the area of post-disaster psychology, it may prove valuable to examine negative events that participants face, their appraisals of such events and their coping strategies using longitudinal designs in order to better understand the gender differences.

The present study had a number of limitations. Being cross-sectional in nature it was not possible to draw conclusions in regards to the causality of the relationships. Furthermore, the coping approaches reflected general and possibly habitual styles of coping rather than coping with specific post-disaster difficulties and the time lap after the earthquake was quite long.

The present results may have some implications for disaster psychological services. One issue is to give women coping strategies and preparedness skills in order to increase their beliefs in control and to counter their helpless approach. Secondly, it seems important to let women process their memories of the earthquake event and to let them have outlets for this processing such as post-disaster critical stress debriefing groups. Therefore, in planning for the future, attempts should be made to create pre-disaster preparedness programs and post-disaster mental outreach programs.

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TABLE 1. Items of the four SCL-40 Factors, their factor loadings and Cronbach Alpha Values

Factor and Item no.	Item	Factor Loadings			
		Factor 1	Factor 2	Factor 3	Factor 4
<b>Factor 1: Somatization</b>					
<b>(variance explained 25%; Cronbach Alpha = .84)</b>					
5.	Pains in heart and chest	<b>.66</b>	.10	.01	.04
23.	Nausea or upset stomach	<b>.63</b>	.03	.15	.05
29.	Numbness or tingling in parts of your body	<b>.63</b>	.16	.08	.15
30.	A lump in your throat	<b>.62</b>	.30	.03	-.03
3.	Feeling of dizziness and faintness	<b>.58</b>	.15	.14	.03
7.	Feeling low in energy or slowed down	<b>.58</b>	.11	.19	.30
22.	Heart pounding or racing	<b>.56</b>	.13	.25	.07
24.	Soreness of your muscles	<b>.56</b>	.06	.13	.13
27.	Trouble getting your breath	<b>.54</b>	.16	.09	.01
1.	Headaches	<b>.53</b>	.01	.00	.43
17.	Pains in lower back	<b>.46</b>	.17	.15	.14
35.	Feeling uncomfortable in crowded places	<b>.36</b>	.23	.19	.01
<b>Factor 2: Depression</b>					
<b>(variance explained 5.8%; Cronbach Alpha = .83)</b>					
8.	Thoughts of ending your life	.07	<b>.67</b>	.00	.04
36.	Feeling everything is an effort	.33	<b>.60</b>	.00	.27
16.	Blaming yourself for things	.09	<b>.59</b>	-.03	.12
38.	The feeling that something bad is going to happen you	.05	<b>.59</b>	.47	.18
31.	Feeling hopeless about the future	.09	<b>.56</b>	.14	.22
32.	Thoughts of death or dying	.13	<b>.54</b>	.28	.02
40.	Feeling restlessness	.28	<b>.50</b>	.26	.27
19.	Feeling blue	.15	<b>.49</b>	.18	.41
20.	Worrying too much about things	.18	<b>.47</b>	.30	.33
34.	Waking up very early in the mornings	.26	<b>.44</b>	.10	-.01

Table 1 (Cont.)

18.	Feeling lonely	.19	<b>.44</b>	.16	.26
25.	Having trouble falling sleep or not being able to sleep well	.33	<b>.36</b>	.20	.14

**Factor 3: Phobic Anxiety****(variance explained 5.3%; Cronbach Alpha =.77 )**

12.	Feeling afraid in closed places	.18	.09	<b>.71</b>	.15
15.	Feeling afraid when left alone at home	.09	.09	<b>.65</b>	.01
13.	Suddenly scared for no reason	.15	.07	<b>.64</b>	.19
6.	Feeling afraid in open spaces or streets	.00	.03	<b>.63</b>	.11
39.	Thoughts or images of frightening nature	.21	.42	<b>.51</b>	.25
28.	Having to avoid certain things places or activities because they frighten you	.14	.23	<b>.50</b>	-.02
26.	Feeling afraid of traveling in buses, train etc.	.17	.19	<b>.44</b>	-.11
9.	Thoughts or images about the earthquake	.21	.21	<b>.37</b>	-.00

**Factor 4: Hostility/Irritability****(variance explained 3.9%; Cronbach Alpha = .72)**

4	Feeling easily annoyed or irritated	.09	.08	.10	<b>.76</b>
2	Nervousness or shakiness inside	.27	.15	.01	<b>.71</b>
37.	Getting into frequent arguments	-.05	.28	.03	<b>.61</b>
14.	Temper outbursts that you could not control	.07	.31	.07	<b>.61</b>
11.	Crying easily	.32	.04	.34	<b>.35</b>

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TABLE 2. Means and Standard Deviations of SCL-40 Factor Scores for Females and Males\*

	<b>Somatization</b>	<b>Depression</b>	<b>Phobic Anxiety</b>	<b>Hostility / Irritability</b>
	M	M	M	M
	SD	SD	SD	SD
Females	1.70 <sub>a</sub>	1.72 <sub>a</sub>	1.73 <sub>a</sub>	2.13 <sub>b</sub>
	.44	.46	.47	.52
Males	1.38 <sub>c</sub>	1.46 <sub>c</sub>	1.37 <sub>c</sub>	1.93 <sub>d</sub>
	.33	.36	.34	.52

\*Means with different subscripts are significantly different from each other at .05 significance level.

TABLE 3. Composition of Factors of WCQ with Factor Loadings, Percentage of Variance Explained, and Cronbach Alpha Values

Item no.	Item	Factor Loadings				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
<b>Factor 1: Problem Solving/Optimistic</b>						
<b>(variance explained 9.5%; Cronbach Alpha = .75)</b>						
57.	I inspire to do something creative about the problem	.53	-.07	.05	-.02	-.01
59.	I try to be assertive and defend my right	.53	.02	-.01	-.17	-.02
60.	I change or grow as a person	.51	.11	.01	-.01	.16
55.	I try not to act very hastily or follow my first hunch	.50	.12	-.17	.09	.12
28.	I know what have to be done, so I double my efforts to make things work	.50	.04	-.11	.13	-.04
47.	I make a plan of action and follow it	.50	-.01	-.28	.20	.03
48.	I quit fighting	-.48	.11	.14	.16	.18
18.	I try to understand the seriousness of the situation	.48	-.05	-.02	.11	.01
36.	I bargain or comprimise to get something positive from the situation	.48	.15	.01	.12	.12
38.	I come out with couple of different solutions for the problem	.47	-.03	.03	.03	.10
35.	I stand my ground and fight for what I want	.46	-.03	-.15	.02	.01
3.	I look for the silver lining, so to speak; I try to look on the bright side of the things	.46	.04	.04	.01	.27
43.	I just concentrate on what I have to do next	.45	.02	-.24	.26	.19
42.	I try to adapt a new perspective	.43	-.01	.03	.08	.14

Table 3 (Cont.)

12.	I maintain pride and keep a stiff upper lip	<b>.41</b>	-0.00	-0.06	.01	.16
9.	I try to analyze the problem in order to understand it better	<b>.40</b>	-.12	-.15	.27	.19
31.	I wait to see what will happen before doing anything	<b>.35</b>	-.09	-.04	.24	.15

**Factor 2: Fatalistic Approach****(variance explained 8.5%; Cronbach Alpha = .78)**

54.	I believe that God knows the best	-.05	<b>.77</b>	.01	-.00	-.05
37.	I believe the existence of destiny and that it does not change	-.04	<b>.67</b>	-.01	-.03	-.00
21.	I think that everything in life has a positive side	-.03	<b>.66</b>	-.02	.18	-.04
50.	I think, what happens is my fate	-.18	<b>.64</b>	.15	.11	.13
24.	I pray	-.09	<b>.63</b>	.16	.08	-.00
30.	I think that it depends on how it develops	-.06	<b>.61</b>	.03	.13	.21
17.	I go along with fate; sometimes I just have bad luck	-.01	<b>.61</b>	.11	-.11	.12
25.	I try to be happy with what I have	.21	<b>.46</b>	-.06	.00	.03
46.	I give money to poor people to escape my troubles	.23	<b>.42</b>	-.07	.02	-.02

**Factor 3: Helplessness Approach****(variance explained 4.6%; Cronbach Alpha = .69)**

40.	I wish that I can change what has happened or how I feel	.12	.00	<b>.63</b>	-.00	-.14
53.	I do not understand my fault	-.04	-.01	<b>.54</b>	-.00	-.00
58.	I realize that I bring the problem on myself	-.16	-.12	<b>.52</b>	.14	.04
19.	I feel helpless	-.21	.09	<b>.51</b>	.05	.07
51.	I think if I were stronger	.00	.09	<b>.49</b>	.15	-.17
49.	I think that I make the problems	-.08	-.10	<b>.47</b>	.02	.12

2.	I hope for a miracle	-.10	.28	<b>.46</b>	.03	.07
26.	I can not help thinking about the problem	-.02	.07	<b>.41</b>	.18	-.07

Table 3 (Cont.)

45.	I accept the next best thing to what I want	-.05	.07	<b>.40</b>	-.01	.18
33.	I do something that I didn't think would work but at least I do something	.06	.04	<b>.38</b>	-.17	.00
44.	I think that I can not find anyway to solve the problem	-.33	.20	<b>.35</b>	.11	.08

**Factor 4: Social Support**

**(variance explained %3.5; Cronbach Alpha = .59)**

27.	I express anger to the person(s) who cause the problem	.04	.00	-.13	<b>.63</b>	.11
34.	I ask friends before I make an action	.18	.02	.04	<b>.58</b>	.06
5.	I expect others to help me in solving my problems	.05	.21	.09	<b>.49</b>	-.04
20.	I expect understanding from people to whom I express my feelings	.25	.17	.19	<b>.45</b>	-.00
13.	I accept sympathy and understanding from someone	.01	.25	.22	<b>.39</b>	.00
10.	I talk to someone to find out more about the situation	.23	-.05	.20	<b>.34</b>	.05

**Factor 5: Escape**

**(variance explained 3%; Cronbach Alpha = .51)**

6.	I make light of the situation; I refuse to get too serious about it	.13	-.07	-.17	-.08	<b>.58</b>
7.	I try to think calmly and not to get angry	.21	-.04	-.18	.05	<b>.56</b>
15.	I try to forget the whole thing	.18	.10	.09	-.07	<b>.49</b>
1.	I turn to work or another activity to make mind off things	-.01	-.04	.04	.10	<b>.41</b>
11.	I feel that time would make a difference the only think was to wait	-.03	.24	.11	.06	<b>.39</b>

16. I try to keep calm and not to hurry .18 .09 .02 .03 **.39**

TABLE 4. Means and Standard Deviations of WCQ Factor Scores for Females and Males\*

	<b>Problem Solving/ Optimistic</b>	<b>Fatalistic Approach</b>	<b>Helplessness Approach</b>	<b>Social Support</b>	<b>Escape</b>
	M	M	M	M	M
	SD	SD	SD	SD	SD
Females	2.40 <sub>a</sub>	2.56 <sub>b</sub>	2.10 <sub>c</sub>	2.23 <sub>d</sub>	2.16 <sub>cd</sub>
	.27	.34	.35	.43	.38
Males	2.59 <sub>b</sub>	2.50 <sub>ba</sub>	1.89 <sub>e</sub>	2.25 <sub>d</sub>	2.24 <sub>d</sub> .39
	.23	.42	.34	.44	

\*Means with different subscripts are significantly different from each other at .05 significance level.

TABLE 5. Items of the Four Social Support Scale Factors, Their Factor Loadings and Cronbach Alpha Values

Item no.	Item	Factor Loadings			
		Factor 1	Factor 2	Factor 3	Factor 4
<b>Factor 1: Social Support From Neighbors</b>					
<b>(variance explained %33.8; Cronbach Alpha = .89)</b>					
11.	To solve my problems I ask advice from my neighbors	<b>.89</b>	.13	.15	.03
12.	I share my feeling with my neighbors	<b>.84</b>	.17	.21	.08
10.	My neighbors help me when I have problem	<b>.83</b>	.16	.22	.07
<b>Factor 2: Social Support From Relatives</b>					
<b>(variance explained 17.6%; Cronbach Alpha = .83)</b>					
9.	My relatives help me when I have emotional problems	.13	<b>.87</b>	.04	.15
8.	I can trust my relatives when I am in trouble	.14	<b>.86</b>	.06	.08
7.	I ask advice from my relatives when I need	.16	<b>.79</b>	.05	.08
<b>Factor 3: Social Support From Friends</b>					
<b>(variance explained 12.1%; Cronbach Alpha = .82)</b>					
6.	I talk to my friends about my problems	.21	.03	<b>.84</b>	.03
4.	I share my feelings -both happiness and sadness- with my friends	.18	.02	<b>.82</b>	.01

5.	My friends help me when I am in trouble	.14	.11	<b>.82</b>	.00
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**Factor 4: Social support from family and spouse**  
**(variance explained 11.2%; Cronbach Alpha = .72)**

2.	My family (spouse and children) help me when I am giving a decision	.07	.07	-.03	<b>.89</b>
1.	I talk to my spouse and my children about my personal problems	.16	.07	-.04	<b>.86</b>
3.	My family support me in hard times	.11	.33	.26	<b>.55</b>

TABLE 6. Means and Standard Deviations of Social Support Scale Factor Scores for Females and Males\*

	Soc. Sup. Neighbors	Soc. Sup. Relatives	Soc. Sup. Friends	Soc. Sup. Family/spouse
	M	M	M	M
	SD	SD	SD	SD
Females	2.34 <sub>b</sub>	2.82 <sub>cd</sub>	3.07 <sub>ce</sub>	3.41 <sub>a</sub>
	.98	.93	.76	.76
Males	2.10 <sub>b</sub>	2.69 <sub>d</sub>	3.21 <sub>ae</sub>	3.33 <sub>ae</sub>
	.99	.98	.81	.75

\*Means with different subscripts are significantly different from each other at .05 significance level.

TABLE 7. Result of Regression Analysis for Females and Males

Predictor Variables	Females			Males		
	Beta	r <sup>2</sup> change	T	Beta	r <sup>2</sup> change	T
STEP I:						
3. Currently employed	-.1	.00	1.20	-.01	.02	1.19
STEP II.						
1. Degree of threat perception	.20	.06	2.58*	.14	.05	1.92
STEP III.						
1. Social Support from relatives	-.06	.01	.85	-.03	.01	.56
STEP IV.						
1. Escape style of coping	-.07		.91	-.03		.52
3. Helplessness coping	.24		3.10**	.21		2.87**
4. Problem solving /optimistic coping	.02		.19	-.29		3.81**
		.11			.20	

STEP V.

1. Belief in future control	-23	2.70*	-.14	1.92
2. Total negative life-events since the earthquake	.11	1.34	.37	4.83***
	.06		.15	
Total R Square	.24		.43	

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\*p< .05    \*\*p< .005    \*\*\*p< .000