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# COPING STRATEGIES OF STRESS USED BY PEOPLE SUFFERING FROM HYPERTENSION

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## ABSTRACT

*The current study intended to examine the relationship of different coping strategies with hypertension. Sample (N=237) consisting of Outdoor hypertensive males (N = 77) and hypertensive females (N = 60) with age range of 35-65 years and their compatible normal control group (N= 100, 50 males, 50 females) were obtained from two public hospitals. Protocol used in the study was Brief Cope Scale by Carver, Scheier, and We intraub (1989) to assess the coping strategies. Mantel-Haenszel test of linear association was run to examine the correlation of coping strategies with hypertension. Binary logistic regression models were used in two stages, first to examine the coping strategies as predictors of hypertension and second to explore the demographic variables as predictors of hypertension disease. Independent samples t-test was carried out to explore differences on the use of coping strategies between hypertensive males and females. Hypertension was found to be significantly correlated with active coping, instrumental social support, substance use, positive reframing, self-blame and acceptance coping strategies.*

***Keywords:*** Hypertension, Emotion Focused Coping Strategy, Problem Focused Coping Strategy

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## INTRODUCTION

Research indicates that hypertension has disproportionately greater rate of prevalence than any other disease. Even though the preemptive measures, the risk of hypertension development is increasing and badly affecting the physical and mental health of people of different nations of the world. It is the major risk of death in America (Angell et al., 2008). Fahad, Ahmad, and Akmal (2010) report that internationally about 1 billion people are passing through hypertension and its pervasiveness will increase up to 1.56 billion by 2025. Hildingh and Baigi (2010) analyzed that continuous rise in high blood pressure is affecting the health of about 25% of adults of both genders. The alarming point is as Chocka lingam (2008) established that more than 50% hypertensive people are not aware of their suffering from hypertension disease.

Coping is a wide-range concept with many types of responses (Compas Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Folkman & Moscowitz, 2004). Coping and stress are correlated with each other. Coping is an effort by a person to meet with stress (Radi, Nayak, Prakash, Randhir, & Metgud, 2009). Usually it is an autonomic and spontaneous response to environmental stress (Skinner & Zimmer-Gembeck, 2007). Coping can be divided into two broader categories which are emotion-focused and problem-focused. Among them problem-focused coping strategy are used directly to prevent the presence of stressor. Practical steps are taken to evade and remove the stressor or to diminish its impact if it cannot be avoided. Emotion-focused coping is aimed at minimizing distress generated by stressors. Emotion-focused coping includes a wide range of responses from self-soothing to expression of negative emotions and attempts are made to escape stressful situations by adapting different measures. According to Lazarus (2006) problem and emotion-focused coping also assist each other. Proper emotion-focused coping reduces undesirable emotions and makes it easy to ponder over the problem in a calm way and yielding better results. This association of problem and emotion-focused coping makes it very effective to think of the two as harmonizing coping functions rather than as two completely different coping strategies (Lazarus, 2006).

Coping strategies are considered strong psychosocial variables to affect reactivity and to alleviate psychological and physiological reaction to external stress (Carroll et al., 2001). Coping strategies are divided into many sub-types. According to Carver, Scheier, and Weintraub (1989), active coping is the course of actions to eliminate the stressor or to restructure its effects. This coping starts

with direct action and maximizing individual efforts and to carry out organized efforts to solve the problem. What we term active coping, it is a like to what Lazarus and Folkman (1984) term as problem- focused coping. Planning is the way of rationally behaving to deal with the stressor. This is the process of action tendencies and making up steps to attain the goal and to make active measures to solve the stress induced stimulus. This is also included in the category of problem focused coping strategies. Venting is to get oneself distracted from the stressor because focusing on these stressors can create hurdles in the way of adjustment. Behavioral disengagement means to decrease the efforts or attempts to deal with the stressful environment. The people with this coping even give up the pursuance of goal and involve themselves in other activities. Behavioral disengagement happens when individual thinks very poor coping results. Positive reappraisal is a kind of emotion focused coping focused at organizing stressful emotions in a proper way and reconsider the problem to take effective measures to solve it. Denial of problem brings more stress by the end and makes more difficult to find the ultimate solution. Acceptance is more functional type of coping response. The individual with this coping accepts the reality of the problem and tries to deal with that stressful situation. Religion serves as emotional support against the stressor or as a vehicle to positive reinterpretation of the problem under study or as a tactic to deal with the stressor (Carver et al., 1989).

Coping with stress varies from individual to individual and sometimes it is difficult to manage. It needs patience and appropriate application of analytical abilities. In the presence of stressful times, individual seeks ways and means to meet with that difficulty. During that process there is an elevation in blood pressure and the individual gets infuriated, which affects his/her performance. Some researchers have reported the relationship of hypertension with emotion focused coping (Ariff, Suthahar, & Ramli, 2011). Still others indicate positive relationship of problem focused strategies with hypertension (Clark, 2003). Lindquest, Beilin, and Knuiman (1997) had shown that coping with stress measures were significantly associated with elevation in blood pressure and ultimately causing hypertension. It is also reported that hypertensive patients use more active coping strategies and religion was an affective variable in influencing coping among them (Schutte et al., 2006). Some investigations have established the association of problem-focused coping strategies with lower rate of noticeable reactivity and less resting blood pressure levels (Ariff, Suthahar, & Ramli, 2011).Others have explored the relationship of problem-focused coping with high level of blood pressure reactivity (Ming et al., 2004). Significant

findings with relation to association between problem-focused coping responses and hypertension are very limited (Clark, 2003) in our culture.

The literature review depicts a clear picture of role of coping strategies in developing hypertension. Burgeoning literature has suggested that coping strategies of stress are main causal factors in hypertension. Plenty of literature has provided the basis for stress provoking conditions and their impact upon the increase rate of blood pressure (Gerin, Davidson, Christenfeld, Goyal, & Schwartz, 2006; Ming et al., 2004). Every individual faces stressful condition while surviving in society but many do not know how to react to the environmental stimuli and are extremely involved in resolving that stress.

Not considering its significance, physicians and other health practitioners always emphasized the medical treatment of hypertension which is highly expensive one and cause frequent visits to hospitals (Schlomann & Schmitke, 2007). Coping strategies used by hypertensive patients have been condoned by investigators. To have the knowhow of coping with stress strategies is a topic of great concern for general public in a developing country like Pakistan. Although the psychological risk factor have frequently been studied by many researches (Mushtaq & Najam, 2014) but coping strategies of hypertension have not been explored before this research and space in this area of research is warranted in Pakistan. Furthermore, the awareness of threatening factors of hypertension has been greatly derived from data provided by developed countries; however the coping strategies used by patients with hypertension may differ from nation to nation due to cultural factors. The existing research is perhaps the first to explore the interactive outcomes of coping strategies and demographic variables to the development of hypertension. The current research also has the distinctive feature to explore which type of coping is associated with hypertension among Pakistani male and female middle class hypertensive population from hospital settings.

On the basis of the literature review following hypotheses were generated:

1. There would be relationship between different coping strategies and hypertension.
2. Coping strategies would be the significant predictors of hypertension.
3. There would be difference in the use of coping strategies between hypertensive males and females.

## METHOD

### *Participants*

It was case control study and the data was collected from two public hospitals of Lahore. Purposive sampling method was used in the study and sample of 237 participants, 77 hypertensive males, 60 hypertensive females, 50 non-hypertensive males and 50non-hypertensive females, was obtained in the present study. Criteria to include hypertensive patients was set as (a) age between 35-65 years and both men and women hypertensive patients were taken as participants of the current research (b) presently who have been using anti-hypertensive medicines for treatment purpose (c) were diagnosed as hypertensive patients (d) and literate people. Non-hypertensive group was matched cautiously to each case of hypertension for gender, age (up to 3 years older and younger), monthly income and working hours. Non-hypertensive group was also recruited from the same hospitals and were (a) non-blood relatives of patients or visitors (b) people with no previous, present or family history of hypertension.

### Exclusion Criterion for Participants

(a) Patients having blood pressure rising complaints but not diagnosed as hypertensives (b) patients suffering from some terminal disease were excluded including (i) liver disease (ii) coronary heart disease (iii) renal disease and (iv) cancer, (c) patients with history of any psychiatric diagnosis or psychiatric medication (d) pregnant women having high blood pressure complaints, were excluded from the study.

### Hypertensive Patients

The age range of participants suffering from hypertension 35- 65 years ($M$= 45; $SD$= 8.41). Participant's once-a-month expenditures were in the range from less than Rs.15000 to Rs.85000 per month ($M$= 28219; $SD$ = 14440.91). The weight of the hypertensive patients ranged from 56 to 100 kg ($M$= 77; $SD$ = 8.93). Similarly 95% (130) patients reported positive family history of hypertension, while 5% (7) reported negative family history of hypertension. Of these 91% (124) reported living in a joint family while 9% (13) were living in a nuclear family. The working hours of the hypertensive patients were ranged from 0 to 20 hours ($M$= 8.77; $SD$ = 4.10).

**Non-hypertensive Controls**

The age of the control group was 35-65 years (*M*= 46; *SD*= 8.98). Participant's monthly expenditures were scheduled as Rs.18000 to Rs.83000 per month (*M*= 29230; *SD* = 13230.78). The weight of the control group was found from 60-87 kg (*M*= 76; *SD* = 8.12). The working hours of the non-hypertensive group were ranged from 4 to 17 hours (*M*= 7.65; *SD* = 4.67).

**Table 1**

***Demographic Characteristics of Study Participants (N= 237)***

| Demographic Variables | Hypertensive patients (*n*=137) | | Control Group (*n* = 100) | |
|---|---|---|---|---|
| | *F* | *%* | *F* | *%* |
| Participant's Gender | | | | |
| Males | 77 | 56 | 50 | 50 |
| Females | 60 | 44 | 50 | 50 |
| Occupation | | | | |
| No Job | 50 | 36 | 42 | 42 |
| Job | 62 | 45 | 36 | 36 |
| Business | 17 | 13 | 18 | 18 |
| Job and business | 8 | 6 | 4 | 4 |
| Parental history of hypertension | | | | |
| No | 7 | 5 | 94 | 94 |
| Yes | 130 | 95 | 6 | 6 |
| Family System | | | | |
| Joint family | 124 | 91 | 15 | 15 |
| Nuclear family | 13 | 9 | 85 | 85 |

***Measures***

**Demographic Information Sheet**

A personal characteristics information sheet was employed to collect statistics about education, age, gender, occupation, monthly expenses, and number of dependents, height, weight and family history of hypertension of all research participants.

### Cope Scale (Brief)

Cope scale (Brief) by Carver, Scheier, and Weintraub (1989) is a 28 items inventory used to assess different coping strategies. The scale has fourteen subscales, comprised of two items each. Cronbach's alpha's for active coping ($\alpha$ = .68), planning ($\alpha$ = .73), positive reframing ($\alpha$ = .64), acceptance ($\alpha$ = .57), humor ($\alpha$ = .73), religion ($\alpha$= .82), using emotional support ($\alpha$ = .71), using instrumental support ($\alpha$ = .64), self-distraction ($\alpha$ = .71), denial ($\alpha$ = .54), venting ($\alpha$ = .50), substance use ($\alpha$ = .90), behavioral disengagement ($\alpha$ = .64) and self-blame ($\alpha$ = .69), respectively as reported by Carver (1997). The responses are given on Likert scale in the way as 1 *(not at all)* and 4 *(extremely happens)*.High score on each coping strategy indicate more use of that coping strategy. Urdu translation developed by Ali (2008) was carried out in the current research.

### *Procedure*

Before administration of Cope Scale participants were explained about the uses, rationale and the benefits which the future generation would have from the current study. A consent form along with a demographic information sheet and Cope Scale (Brief) were independently employed to all study participants. A sum of 280 people suffering from hypertension was contacted and 237 gave their permission to participate in the present research. Data was collected from outdoor departments of two public hospitals. Participants were not given monetary compensation for their participation in the study. They were only orally told about the outcomes the study would impart to prevent hypertension from our society. Many who initially refused to participate after this briefing got ready to take part in the study.

## RESULTS

The data was analyzed with the help of descriptive and inferential statistics using SPSS version 18.

### *Relationship of Coping Strategies with Hypertension*

Mantel-Haenszel Test of Linear Association (MHTLA) was used to explore correlation of different coping strategies with hypertension. If the

exposure variable is ordinal, the ordinary chi-square test does not take into account the inherent order among the categories. It hardly checks the overall departure of observed from expected across the r ×2 cells of the table. A test of linear association (Pearson Chi-square) between rows and columns will be statistically insufficient, because it fails to distinguish between one and two category differences (Hanif, Ahmed, & Ahmed, 2006). In categorical data it has been observed that MHTLA provides more comprehensive results than Chi-square Test of Association when the assumptions of later are not fully met. In the present research each coping strategy was dichotomized in to 3 orders i.e. low, middle and high, but the levels are not given in the table because in all coping strategies "high" was significantly associated with hypertension.

**Table 2**
***Correlation of Coping Strategies with Hypertension (N = 237)***

| Coping Strategies | *M* | *SD* | *α* | $\chi^2_{MH}$ | *p* |
|---|---|---|---|---|---|
| Active coping | 6.01 | 1.88 | .91 | 70.79 | .001** |
| Self-distraction | 5.24 | 2.27 | .71 | -76.72 | .071 |
| Denial | 4.10 | 2.13 | .81 | -94.47 | .084 |
| Substance use | 3.98 | 2.56 | .71 | 98.41 | .001** |
| ESS | 4.96 | 2.67 | .82 | -37.74 | .061 |
| ISS | 5.03 | 2.52 | .81 | 148.54 | .001** |
| BD | 3.81 | 1.95 | .80 | -80.13 | .089 |
| Venting | 4.97 | 2.34 | .69 | -68.64 | .073 |
| PR | 5.87 | 2.19 | .72 | 21.66 | .001** |
| Planning | 5.79 | 2.03 | .77 | 118.59 | .001** |
| Humor | 4.34 | 2.22 | .78 | -162.63 | .421 |
| Acceptance | 5.98 | 1.77 | .81 | 118.63 | .000*** |
| Religion | 5.44 | 2.40 | .69 | -65.68 | .121 |
| Self-blame | 4.91 | 2.49 | .76 | 148.06 | .001** |
| Total coping | 70.30 | 9.86 | .91 | 113.17 | .000*** |

*Note: M* = Mean scores, *SD* = Standard Deviation of scores, *α* = reliability coefficient, *χ2MH* = Mantel-Haenszel Chi- square, ESS= Emotional Social Support, ISS= Instrumental Social Support, BD= Behavioral Disengagement, PR= Positive Reframing,**= $p<.01$, ***= $p<.01$, $df=1$

Result in Table 2 shows that hypertension has statistically significant positive relationship with active coping ($\chi^2_{MH} = 70.79$, $p<.01$).Similarly hypertension has significant positive relationship with substance use,

instrumental social support, positive reframing, planning, acceptance, self-blame and with Total coping.

***Coping Strategies of Hypertension***

Logistic regression analysis was carried out in 2 stages. Initially we run the analysis to examine the coping strategies of hypertension. Active coping, acceptance, instrumental social support and self-blame appeared as significant predictors of hypertension as reported by hypertensive patients.

**Table 3**
***Logistic Regression Analysis to Examine Coping Strategies of Hypertension***

| Predictor Variables | *B* | *S.E* | *Wald* | *Sig.* | *LL* | *OR* | *UL* |
|---|---|---|---|---|---|---|---|
| | | | | | 95% *CI* | | |
| Constant | -13.45** | 4.90 | | | | | |
| Active coping | .65** | .27 | 6.84 | .001 | 1.05 | 1.51 | 2.21 |
| Acceptance | .83*** | .43 | .92 | .000 | 1.43 | 1.20 | 1.97 |
| ISS | .90*** | .64 | 11.89 | .000 | 1.95 | 2.69 | 4.72 |
| Self-blame | .76*** | .32 | 7.56 | .000 | 1.20 | 1.68 | 2.79 |

Note: $R^2$ = 62.54 (Hosmer & Lemeshow), 16.17 (Cox & Snell .56) (Negelkerke .75). Model $\chi^2$ (14) = 198.13, $^{**}p<.01$, $^{***}p<.001$.

**Interpretation of coefficients**

Results given in Table 3 indicate that active coping appeared as significant predictor of hypertension. The odds ratio for active coping is 1.51 and $B$ = .65. Each unit increase in scores of active coping is associated with increase in the odds of hypertension by a factor of 1.51 (95% CI, 1.05-2.21, $p<.01$). The odds ratio for acceptance is 1.20 and $B$ = .83.Consequently, as acceptance coping increases by one scale unit chances of hypertension in an individual is increased 1.20times. Similarly odds ratio for instrumental social support is 2.69 and $B$ = .90. The coefficient is positive and odds ratio is 2.69.Therefore it is concluded that as instrumental social support is increased by one scale unit chances of hypertension in an individual is increased 2.69 times, and finally odds ratio for self-blame is 1.68 and $B$ = .76. So, each unit increase in scores of self-blame is

correlated with rise in the odds of hypertension by a factor of 1.68 (95% CI, 1.20-2.79, $p$ <.001).

***Demographic Variables as Predictors of Hypertension***

Logistic regression models were used to explore demographic predictors of hypertension in the 2nd stage. The results given in Table 4 indicate that among demographic variables, age is a significant predictor of hypertension (*OR*= .28, *p*<.01*)*.Number of dependents is another important strong predictor of hypertension (*OR*= .19, *p*<.05); Monthly income is next strong predictor (*OR*= .40, *p*< .01*);* as well as parental history of hypertension and joint family system turned out to be significant predictors of hypertension.

**Table 4**
***Logistic Regression Predicting Hypertension from Demographic Variables among Hypertensive patients (N = 237)***

| Predictor Variables | *B* | *S.E* | *Wald* | *Sig.* | *LL* | *OR* | *UL* |
|---|---|---|---|---|---|---|---|
| | | | | | 95% CI | | |
| Constant | -10.71 | 2.27 | | | | | |
| Age | .28** | .08 | 6.50 | .004 | 1.30 | 1.10 | 1.53 |
| Dependents | .19* | .09 | 5.27 | .024 | .78 | 1.24 | 2.08 |
| Monthly income | -.40** | .21 | 8.87 | .001 | 1.23 | 1.53 | 2.45 |
| PHH | .94*** | .59 | 13.03 | .001 | 2.88 | 3.61 | 5.54 |
| Joint family system | .59*** | .31 | 9.52 | .012 | 1.89 | 2.93 | 4.71 |

Note: $R^2$ = 61.67, Hosmer & Lemeshow = 12.23, (Cox & Snell) = .54, Negelkerke = .93, Model $\chi^2$ (14) = 72.75, PHH= Parental History of Hypertension, LL= Lower Limit, UL= Upper Limit, *$p$<.05, **$p$<.01, ***$p$<.001

**Interpretation of coefficients**

The odds ratio for age given in Table 4 is 1.10 and $B$ = .28. Therefore as age increases by one scale unit, odds of hypertension in an individual is increased 1.10 times. The odds ratio for number of dependents is 1.24 and $B$ = .19. The coefficient is positive. When the number of dependents increases by one scale unit chances of hypertension in a person increases 1.24 times. Monthly income turned out to be a protector of hypertension. The odds ratio for monthly income

is 1.53 and *B* = -.40, and coefficient is negative. Therefore each unit increase in scores of monthly income is associated with decrease in the odds of hypertension by a factor of 1.53 (95% CI, 1.23-2.45, *p*< .01). Parental history of hypertension appeared a significant predictor of hypertension with odd ratios 3.61 which means that as parental history of hypertension would increase by one scale unit the risk of hypertension would also increase by 3.61 times. Finally joint family system emerged as a positive significant predictor of hypertension development. Odd ratios indicate that as living in a joint family system would increase by one scale unit, risk of hypertension development would increase by 4.71 times in an individual.

**Table 5**

***Means, Standard Deviations and t Values of Hypertensive Males and Females on Cope Scale (N=137)***

| Factors | Males (*n*=77) | | Females (*n*=60) | | *t* | Cohen's *d* | *C.I 95%* | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | *UL* | *LL* |
| AC | 7.23 | 1.29 | 6.46 | 1.44 | 3.26** | .56 | .30 | 1.23 |
| SD | 3.94 | 2.00 | 4.38 | 2.10 | -1.23 | .21 | -1.13 | .26 |
| Denial | 2.83 | 1.41 | 3.11 | 1.55 | -1.12 | .19 | -.78 | .21 |
| SU | 5.94 | 2.35 | 4.70 | 2.44 | 3.03** | .52 | .43 | 2.06 |
| ESS | 3.87 | 1.86 | 4.28 | 2.17 | -1.19 | .20 | -1.09 | .26 |
| IS | 7.07 | 1.13 | 6.31 | 1.51 | 3.36** | .57 | .31 | 1.55 |
| BD | 2.74 | 1.49 | 2.98 | 1.58 | -.91 | .15 | -.76 | .28 |
| Venting | 6.42 | 1.87 | 5.58 | 2.31 | 2.36* | .40 | .13 | 1.55 |
| PR | 6.74 | 1.67 | 6.06 | 2.04 | 2.12* | .36 | .04 | 1.30 |
| Planning | 7.37 | 1.19 | 6.58 | 1.55 | 3.38** | .58 | .32 | 1.25 |
| Humor | 2.71 | 1.04 | 2.83 | 1.22 | -.61 | .10 | -.50 | .26 |
| Acceptance | 7.31 | .93 | 6.73 | 1.20 | 3.16** | .53 | .21 | .94 |
| Religion | 3.85 | 2.08 | 5.01 | 2.43 | -3.00** | .51 | -1.92 | -.32 |
| SB | 7.01 | 1.48 | 6.06 | 1.86 | 3.21** | .55 | .36 | 1.52 |
| COP. Total | 75.00 | 7.04 | 71.38 | 8.55 | 2.76** | .47 | 1.05 | 6.35 |

Cl - Confidence Interval; LL - Lower Limit; UL - Upper Limit, Ac = Active coping, SD = Self-distraction, SU = Substance Use, ESS = Emotional social support, IS = Instrumental Support, BD = Behavioral disengagement, PR = Positive reframing, SB = Self-Blaming, COP. Total = Coping Total, *$p$< .05, **$p$< .01

The results shown in Table 5 indicate significant differences in active coping, substance use, instrumental social support, venting, positive reframing, planning, acceptance, religion, and self-blame coping in hypertensive males as compared to hypertensive females. The values of Cohen's *d* indicates that active coping, substance use, venting, positive reframing, instrumental social support, planning, religion, acceptance and self- blame coping have larger effect on males than females.

## DISCUSSION

The existing research was conducted to identify coping strategies used by patients with hypertension. The findings of the present study have demonstrated significant differences in terms of coping strategies and lifestyle factors among hypertensive and non-hypertensive populations. Main findings of the existing research were the significant relationship of active coping, positive reframing, substance use, instrumental social support, acceptance and self-blame with hypertension. Similarly active coping, instrumental social support, acceptance and self-blame appeared as strongest predictors of hypertension.

The findings remained true when controlled for demographic variables as age, education, marital status, number of dependents, income, total number of children and working hours. Addition of the control variables ensured that correlation between coping strategies and hypertension did not owe to these factors. This strategy had double advantage. Initially we were able to know the overall variance explained in hypertension by different coping strategies and it was also examined how these strategies were related to hypertension independently and control variables.

The main finding of the present research that coping strategies like active coping came out as significantly associated with hypertension. Active coping is a style with more alertness and active participation to solve the problem under consideration. It needs immediate reaction and appropriate application of analytical abilities to manage with stressful stimuli. Active coping is analogous to Lazaras' problem focused coping which is the application of direct energies to ameliorate the stressful condition. Present finding is in line with those of Clark (2003) that hypertensive patients use more active coping strategies by focusing more on problem. Schutte et al. (2006) further add that participants with more use of active coping pass through more rapid change in elevation of blood pressure. Clark (2003) also showed that the use of active coping and problem

focus coping strategies cause high increase in diastolic blood pressure. Light, Dolan, Davis, and Sherwood (1992) have shown cardiovascular reactivity in response to active coping as a predictor of later hypertension. This demonstrates that more the alertness regarding predicament and use of active coping style more the risk of increase in blood pressure which ultimately leads to hypertension.

Additionally, hypertension has a significant relationship with substance use might be explained that hypertensive patients use alcohol related things like sleeping pills to get rid of the stresses of life and to take a sound sleep. This can be explained that might be they are experiencing sleeplessness due to stress they pass through. Therefore they frequently use the alcohol related drugs. The current finding corroborates with Huntgeburth, Ten, and Rosenkranz (2005) who report quantity of alcohol intake has greater impact on blood pressure rate and prevalence of hypertension. Kodavali and Townsend, (2006) conclude that reduction in alcohol consumption can bring noticeable decrease in blood pressure. Sesso, Cook, Buring, Manson, and Gaziano (2008) warn that excessive alcohol intake has deleterious effects upon health and increase the rate of their blood pressure.

Positive reframing is a significant feature of hypertension in the current research. Hypertensive patients try to find the suitable solution of stressful situation. In this process they reframe the problem and positively tried to solve that riddle. Carver et al. (1989) explained that interpreting a stressful matter in positive terms basically leads an individual to continue the active coping strategies. The prolonged stressful situation causes metabolic activity in their blood which increases their diastolic blood pressure. If the situation comes again and again the persistent increase would cause them to suffer from hypertension.

Problem focused coping involves several distinct activities like instrumental social support, acceptance, and self-blame (Carver et al., 1989). These variables have statistically significant positive relationship with hypertension in the present research. This finding is in line with those of Clark (2003) and Suzanne, Ann, and David (1989) which suggest that problem focused and information seeking coping strategies along with parental history of hypertension are associated with hypertension. This finding confirms the second hypothesis that hypertensive patients use different coping strategies relative to non-hypertensive controls. They remain more nerve-racking for problem they are getting in.

As far as predictors are concerned acceptance appeared as significant predictor of hypertension. The finding that active coping is a strong predictor of hypertension corroborates with Schutte et al. (2006) which confirms the role of active coping and problem-focused coping in predicting hypertension. Similarly instrumental social support also appeared as a significant predictor of hypertension. This might be explained that hypertensive patients themselves try their best and also sought advice from their kin to come up with a solution. When people with hypertension are confronted with some difficult situation they seek moral and instrumental support from their social circles.

It may be argued that the hypertension is an emotional disease (Mushtaq & Najam, 2014) and many coping strategies are major contributing factors of hypertension development. If the individual combats with severe conflict or frustration, uncertainty, or deprivation; the result is the state of stress. The successive stressful experiences play havoc in the health of an individual.

Coping with stress varies from individual to individual and is difficult to manage. It needs patience and appropriate application of analytical abilities. In the presence of stressful times, individual seeks ways and means to meet with that difficulty. During that process there is elevation in blood pressure and the individual gets infuriated, which affects his/her performance. Lindquest, Beilin, and Knuiman (1997) had shown that coping with stress strategies were significantly associated to elevation in blood pressure.

As far as demographic variables are concerned, age remains a significant predictor of hypertension in the present research. Age is an established risk factor of hypertension. Hajjar, Lackland, Cupples, and Lipsitz (2007) reported that aged hypertensive patients remain more vulnerable to disability with respect of young adults.

Empirical evidence from longitudinal and prospective researches indicates a significant association between low monthly income and hypertension development. Francisco et al. (2003) reported that hypertensive patients attained low scores on quality of life scale as compared to non-hypertensive patients. Low income means to do a low status job and earn meager money to survive which results in promoting poor health associated lifestyle (Lynch & Kaplan, 2000).

Grotto, Hunter, Grossman, and Sharabi (2007) explored the effect of low socio-economic status in developing hypertension in young males. High blood

pressure level was noted among low rank employees in comparison with high rank employees.

Next demographic variable predicting hypertension is parental history of hypertension. There is sufficient empirical evidence which suggest that being the blood relative of hypertensive is a vital cause of developing hypertension (Andreas, Stefan, & Boris, 2005; Clark, 2003; Grewen, Girdler, Hinderliter, & Light, 2006; Kabir, Welton, Khan, Gustate, & Chen, 2006; also see Thanakwang & Soonthorndhadha, 2006). As far as family system is concerned the findings of the current research suggest that 91% of the respondents reported to live presently in "*joint family system"* and also predicted hypertension. This result supports with those of Dorn, Yzermans, Guijt, and Van der Zee (2006) who suggests that environmental stress is a major factor of hypertension. It may be argued that joint family system is a main feature of Pakistani society which requires a lot of expectations from the male members of the house. While living in a joint family system one has to fulfill the expectations of all family members. Males behave predominantly in joint family system and expect obedience from female members of house. This practice may be a causal factor of hypertension.

The present study was an effort to explore different coping strategies of hypertension. The coping strategies associative with and predictors of hypertension can be highlighted through print and electronic media and public health awareness programs. Understanding the coping strategies causing hypertension could open new vistas of research and scientific inquiry. The findings of the present research project could conceivably lead to the identification of new therapeutic targets which would help those with hypertension to make more effective targets. Clinicians and doctors, specialists involved in primary care should focus not only on the symptomatic treatment, but underlying coping strategies as well.

***Conclusion***

It is concluded that there is positive relationship between coping strategies of stress and hypertension as reported by hypertensive patients from the outdoor departments of public hospitals. Moreover, more active coping, substance use, instrumental social support, positive reframing, acceptance, and self-blame coping strategies are found to be associated with hypertension. Furthermore, active coping, instrumental social support, acceptance and self-blame turned out the strongest predictors for hypertension, whereas age, number

of dependents, monthly income, family history of hypertension and joint family system turned out the strongest demographic predictors of hypertension.

### *Limitations and Recommendations*

The major drawback of the present research was that the current research was conducted with a small sample taken from two public hospitals only, which may not be thought out true representative of the whole hypertensive population. It may be a threat to the external validity of this research. Further effort is required to explore the risk factors of hypertension with a large sample to bring more comprehensive results.

Another main limitation of the current research was the use of self-report questionnaire/ scale/checklist which might have resulted in under reporting or over reporting due to the nature of the disease they were suffering from. Therefore, it is strongly recommended that in future researches focus group and interview techniques must also be used in addition to self-report questionnaires in order to get more comprehensive information about the degree and nature of coping with stress strategies assessment among male and female hypertensive patients. It is further recommended that qualitative analysis in addition to the quantitative analysis of the responses of the participants must be carried out.

More social factors could have been highlighted in the same research like smoking habits, size of family, eating habits, workplace environment, status of job, nature of job, unhealthy eating habits like very spicy and oily rich food, BMI and obesity etc.

### *Implications*

The findings of this research have implications for promoting our understanding of coping strategies of hypertension in Pakistani population in order to introduce effective preventive measures to reduce the prevalence of hypertension.

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