

Coping Strategies and Blood Pressure Control among Hypertensive Patients in a Nigerian Tertiary Health Institution

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Abstract:

Background: The diagnosis of hypertensive in an individual could be regarded as a major challenge and hence constitute a stressor. It is therefore expected that such an individual will develop some strategies of coping with such a challenge. The management outcome will be influenced by the strategies deployed by the patient in coping with the reality of such a chronic illness. This work was designed to determine the type of coping strategies employ by the subjects, the relationship with blood pressure control, and identifiable patient characteristics that my contribute to the choice of coping strategy.

Methods: A descriptive study conducted at the cardiology clinic of Ekiti State University Teaching Hospital, Ado-Ekiti. A total of 265 subjects were consecutively recruited into the studies out of which 260 were suitable for analysis using SPSS version 17.

Results: The predominant coping strategies among the subjects were in the positive domain (problem solving and social contact) with associated lower mean blood pressure. There was an association between type of coping strategy and attainment of target BP while marital status and the level of education were correlated with coping type.

Conclusion: There is low attainment of target BP among the study population. Patients' factor should be considered in the management of hypertension in order to achieve better control.

Keywords: coping strategies, hypertensive patients, tertiary health institution

I. Background

Hypertension is a global health problem and an important public health challenge. As at 2000, 26.4% totaling about 1 billion people of the global adult population had hypertension and 29.2% were projected to have this condition by 2015.^{1,2} Hypertension that used to be regarded as a disease of the developed world has since added to the disease burden of the developing world. Almost three quarters of the people with hypertension are said to be living in the developing world.^{3,4}

The aim of hypertension management is to attain target blood pressure control; this has however been a great challenge both in the industrialized and developing countries.⁵⁻¹⁵

A systematic review that compared hypertension prevalence in settings with different rate of economic development showed higher overall prevalence of controlled hypertension in more affluent countries^{3, 16}. Various factors have been identified as contributors to this failure^{17,18,19}. One important area that needs to be researched into is the patients' factor in the overall control of blood pressure.

One of the most threatening challenges an individual can face in his/her life time is a challenge to his or her health. The fear of possible disability whenever an individual is diagnosed with chronic illness could be overwhelming and such bad news usually generates both immediate and delayed response. Having come into reality with such a stressful life event, a process of coping is set in motion which includes appraising, response options and implementation.²⁰

In a meta – analysis by Ersek et al among older adults with persistent pain, the most frequently reported coping strategies were task persistence (maintaining activity for example despite fluctuation of pain intensity), pacing (activity avoidance), and coping self-statement (a form of conditioning to put a stop for example to thoughts that lead to anxiety etc and replace them with rational thoughts); the least frequently used strategies were Asking for Assistance and Relaxation^{21,22}.

In 1981, Folkman and Lazarus developed the Lazarus ways of coping questionnaire to assess coping thoughts and behaviours in response to a specific stressor. The coping strategies inventory short form (CSI – S) is a 32 – item self – report questionnaire that was adapted from the Lazarus ways of coping questionnaire by David L. Tobin in 1985. There are a total of 14 – subscales on the CSI – S which include eight primary scales, four secondary scales and two tertiary scales.²³

The primary scales consist of specific coping strategies that people use in response to stressful events. These include; problem solving, cognitive restructuring, social contact, expressed emotions, problem avoidance, wishful thinking, and social withdrawal.²⁴

The coping strategies employed by hypertensive patients may be an important contributor to the overall success or otherwise of the management of their hypertension. This is because like most other chronic illnesses, active participation and motivation is required on the part of the patient for effective management. While those with positive coping strategies will need encouragement, those with negative form of coping strategies will require special attention and re – orientation.

II. Methodology

Setting of the study - This cross sectional study was conducted at the general outpatient of clinic and the cardiology clinic of the Ekiti State Teaching Hospital, Ado – Ekiti among consenting hypertensive patients.

Study Population– All consenting hypertensive patients attending the affected clinic were consecutively recruited into the study until the required sample size is obtained.

Population Size – The sample size for this study was derived using the formular $n = P(1 - P) (\frac{Z}{d})^2$ Where n is the required sample size, P is the national prevalence of hypertension which is 22%, Z = confidence level at 95% (standard value of 1.98), d = margin of error at 5% (standard value of 0.05). The sample size is thus: - $n = (0.22) (1 - 0.22) (\frac{1.96}{0.05})^2 = 263.64$
The minimum sample size for this study was thus = 263.

Data Collection – Questionnaire was admitted to collect social – demographic information from the participants. Specific questions were asked to assess their coping strategies in three areas of the primary subscales, that is, problem solving, problem avoidance, and social contacts. Their blood pressure was measured on the day of interview twice using conventional method.^{25,26,27} The average value of the two readings following a 5 minute rest interval was taken as the current blood pressure.²⁷

Data Analysis – Data collected was analyzed using Statistical Package for Social Science version 17 Software (IBM Corporation, Armonk, NY, USA). Results will be expressed as means, frequencies and percentages. Comparison of means and frequencies was done while chi square was used to determine the level of significance with P value < 0.05 considered significant.

A subject who scores at least 10 out of the maximum of 16 points in any of the coping domain is regarded as having adopted such a coping method. This is not exclusive of each other as subjects were found to have adopted more than one strategy especially problem solving and social contact. The target blood pressure was defined as BP<140/90 for those without either diabetes mellitus or chronic kidney disease and BP<130/80 for those with the co-morbid conditions. The subgroups with co-morbidity were not analyzed separately for coping strategy.

Ethical Consideration- Ethical Approval for this study obtained from the ethics and research committee of the Ekiti State University Teaching Hospital before stating the study. A written consent was obtained from the participants.

III. Results

A total of 265 consenting subjects participated in this study but only 260 questionnaires were suitable for analysis. The mean age of the subjects was 61.96±11.69 and a mean BMI of 27.23±4.35. There were 109(41.9%) males and 151(58.1%) females with male: female ratio of 1:1.39. A large proportion (72.7%) were married, 41.2% read up to tertiary education level while civil servants and traders accounted for 26.2% each.

The distributions of the subjects among the domains of coping strategies were problem solving (71.9%), social contact (63.5%), and problem avoidance (19.2%). Some subjects simultaneously adopt two types of strategies especially problem solving and social contact.

The mean blood pressures among different coping domains (systolic/ diastolic) are problem solving (134.76/80.32), problem avoidance (149.20/87.00), and social contact (134.55/80.18).

Attainment of target blood pressure (BP) of <140/90 among the coping domains are problem solving (50.3%), problem avoidance (14.0%), and social contact (50.9%). Among those with either diabetes mellitus (DM) or chronic kidney disease (CKD) as co-morbidity, 23.1% attained the target blood pressure of <130/80.

There is a statistically significant variation in the systolic blood pressure among the three domains (p= 0.000) and this was confirmed by levene statistics analysis (0.524) where between groups mean square was

4630.500 and within groups mean square equals 246.925. The diastolic blood pressure follows a similar pattern ($p= 0.000$), levene statistics (0.526), mean square between groups (996.557) and within groups (118.109).

The level of blood pressure was inversely correlated with problem solving ($p= 0.000$), and social contact ($p= 0.000$) while there is a positive correlation between problem avoidance and the level of blood pressure.

Some of the patients' characteristics were noted to be significantly correlated with the type of coping strategies adopted by the subjects. Marital status bears a positive and significant correlation with problem solving ($p= 0.000$) while it was negatively and significantly correlated with problem avoidance ($p= 0.000$). The level of education was positively and significantly correlated with problem solving strategy.

Table I: Baseline Characteristics of Subject

Characteristics	Frequency	%
Marital status		
Single	3	1.2
Married	189	72.7
Widowed	49	18.8
Divorced	9	3.5
Separated	10	3.8
Ethnicity		
Yoruba	237	91.2
Igbo	21	8.0
Hausa	2	0.8
Level of education		
No formal education	35	13.3
Primary	60	23.1
Secondary	58	22.3
Tertiary	107	41.2
Occupation		
No regular job	18	6.9
Trading	68	26.2
Farming	24	9.2
Retired	57	21.9
Civil servant	68	26.2
Artisan	25	9.6

Table II: Distribution of Subjects According To the Attainment of Target Blood Pressure

Coping strategy	No (%)	Target BP NO (%)	X ²	P value
Problem solving	187 (71.9)	94 (50.3)	29.255	0.000
Problem avoidance	50 (19.2)	7 (14.0)	17.437	0.0000
Social contact	165 (63.5)	84 (50.9)	22.359	0.000

Table III: Blood Pressure Distribution among the Coping Domains

	N	Minimum	Maximum	Mean	Std. Deviation
Psolv_systolic	187	100	180	134.76	15.565
Psolv_diastolic	187	60	100	80.32	10.969
Pavoid_systolic	50	110	180	149.20	14.824
Pavoid_diastolic	50	70	110	87.00	10.926
Scontact_systolic	165	100	180	134.55	16.134
Scontact_diastolic	165	60	100	80.18	10.734
Valid N (listwise)	50				

The significance of blood pressure variation among coping groups

Table IV ANOVA

Systolic	Sum of squares	Df	Means square	F	sig
Between groups	9260.999	2	4630.500	18.753	0.000
Within group	98523.080	399	246.925		
Total	107784.080	401			
Diastolic					
Between groups	1993.114	2	996.557	8.438	0.000
Within groups	47125.294	399	118.109		
Total	49118.408	401			

Table V LEVENE

Systolic	df 1	df 2	Sig
.524	2	399	0.592
Diastolic			

.525	2	399	.592
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Table VIDUNCAN

Coping type	Diastolic			Systolic		
	N	Subset alpha =0.05		N	Subset alpha =0.05	
		1	2		1	2
Social contact	185	134.55		165	80.18	2
Problem solving	187	134.75		187	80.32	
Problem avoiders	50		149.20	50		87.00
Sig.		.925	1.00		.930	1.000

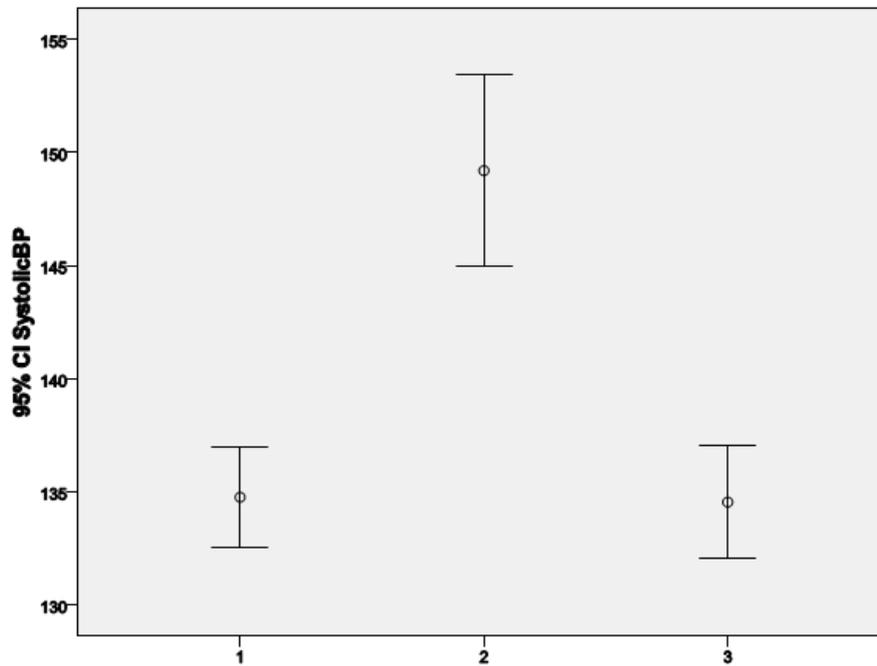


Figure 1: Error bar graph of the mean systolic BP among the groups
1 = problem solving, 2 = problem avoiders, 3 = social contact

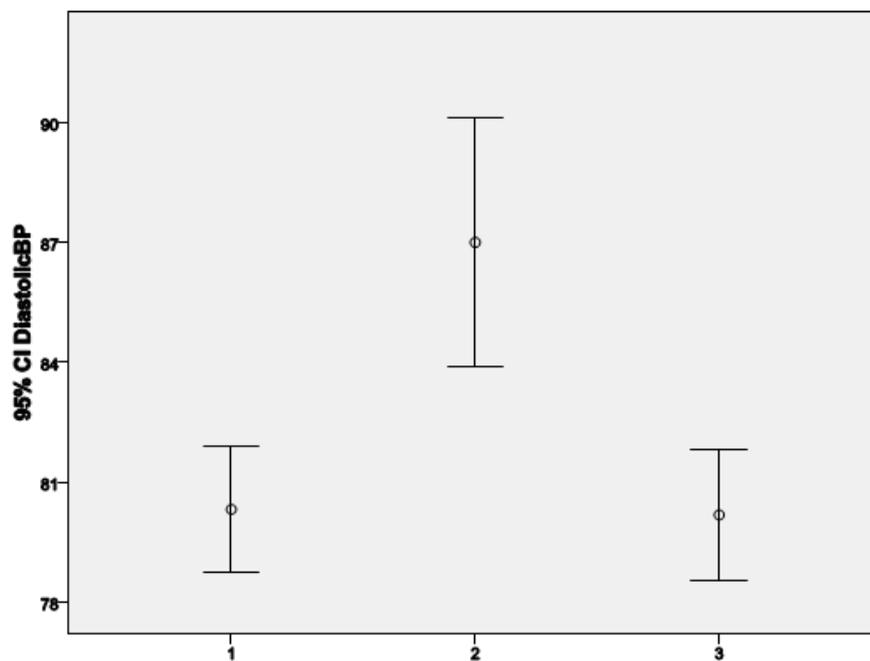


Figure 2: Error bar Graph of The Mean Diastolic Bp among Groups

Table VII: Correlation between Patients' Characteristics and Type of Coping

	Marital S	Corre. Coeff. Sig. (2-tailed) N	Marital S. 1.000 260	P. Solv -.065 .300 260	P. Avoid .033 .595 260	S. Contact .099 .111 260
Spearman's rho	Marital S	Corre. Coeff. Sig. (2-tailed) N	1.000 260	-.065 .300 260	.033 .595 260	.099 .111 260
	Psolving	Corre. Coeff. Sig. (2-tailed) N	-.065 .300 260	1.000 .000 260	-.694** .000 260	.397** .000 260
	Pavoidance	Corre. Coeff. Sig. (2-tailed) N	.033 .595 260	-.694** .000 260	1.000 .000 260	-.420 .000 260
	Scontact	Corre. Coeff. Sig. (2-tailed) N	.099 .111 260	.397** .000 260	-.420 .000 260	1.000 .000 260
			Psolving	Pavoidance	Scontact	Leve.education
Spearman's rho	Psolving	Corre. Coeff. Sig. (2-tailed) N	1.000 .000 260	-.694** .000 260	.397** .000 260	.144** .020 260
	Pavoidance	Corre. Coeff. Sig. (2-tailed) N	-.694** .000 260	1.000 .000 260	-.420** .000 260	-.046 .456 260
	Scontact	Corre. Coeff. Sig. (2-tailed) N	.397** .000 260	-.420** .000 260	1.000 .000 260	-.019 .766 260
	Leve.education	Corre. Coeff. Sig. (2-tailed) N	.144** .020 260	-.046 .456 260	-.019 .766 260	1.000 .000 260
			Psolving	Pavoidance	Scontact	BP group
Spearman's rho	Psolving	Corre. Coeff. Sig. (2-tailed) N	1.000 .000 260	-.694 .000 260	.397 .000 260	-.335** .000 260
	Pavoidance	Corre. Coeff. Sig. (2-tailed) N	-.694** .000 260	1.000 .000 260	-.420** .000 260	.259** .000 260
	Scontact	Corre. Coeff. Sig. (2-tailed) N	.397** .000 260	-.420** .000 260	1.000 .000 260	-.239** .000 260
	BP group	Corre. Coeff. Sig. (2-tailed) N	-.335** .000 260	.259** .000 260	-.293** .000 260	1.000 .000 260

IV. Discussion

Coping strategies adopted by the subjects were mainly problem solving and social contact with the former slightly higher than the latter. Out of the three coping domains, the problem solving and social contact are regarded as positive (adaptive) coping strategies, while problem avoidance is negative (mal adaptive).

The mean blood pressure was lowest among the social contact group, closely followed by the problem solving with the lowest among the problem avoidance group. Attainment of target blood pressure was lowest among the problem avoidance group. It has been demonstrated by Ariff et al that both diastolic and systolic blood pressure were negatively correlated with task oriented coping style²⁸. Endler and Parker defined task-oriented coping style as a purposeful effort to solve a problem, cognitive restructuring of the problem or attempt to alter the situation²⁹. This definition aptly described the problem solving coping strategy.

Thalina et al in their work on lifestyle, coping, and job stress on blood pressure found no direct effect of perceived stress on resting blood pressure but found an inverse relationship between positive attitudinal coping mechanism and blood pressure levels. They therefore suggested mediating influences of lifestyle factors or coping behaviours in the relationship between job stress and blood pressure (BP)³⁰. The target blood pressure attained by those in the positive domains in this work is comparable with findings by Olanrewaju et al in a tertiary hospital in Nigeria where the SBP+DBP control was 53.3% while those in the negative coping domain scored lower. Ernest and Acheing et al also recorded 48.7% and 26.0% attainment of target BP among hypertensive patients in central Kenya^{31,32,33}. Attainment of target BP among DM+CKD sub group (32.1%) in this work is higher than the findings by both Olanrewaju and Ernest et al^{32,34}.

There is a positive correlation between the level of education and adoption of the problem solving method of coping in this study (p= 0.000). This may be a reflection of the influence of education on rational thinking and decision making or an intermediary factor that may be identified in the course of future research. Marital status also bears positive correlation with problem solving method of coping (p= 0.000) but negatively correlated with problem avoidance (p= 0.000).

Various workers have demonstrated the influence of marriage on health. Married people are said to be more likely to see the doctor for checkups, screening and other early detection than the non-married with the same symptoms, functioning and general level of health^{34,35}.

V. Conclusion

This work has demonstrated that the attainment of target BP among hypertensive patients still remains a challenge among the study population. It has also shown the need to pay attention to psychosocial aspect of hypertensive management as those with positive coping strategies achieved better BP control.

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