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Effectiveness of Garlic Soaked With Honey on Primary Hypertension among the Fishermen

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Abstract:
The main aim of the study was to assess the effectiveness of educational intervention and garlic soaked with honey among fishermen with primary hypertension. Multistage random sampling technique was used to select 60 samples for interventional group and 60 for control group from villages where fishermen at Cuddalore district. During the intervention garlic soaked with honey 10 grams given daily in the morning after breakfast orally for 8 weeks and health education given after pretest. Most of the subjects 43.33% in interventional group and 48.33% in control group between the age group of 46 to 59 years. The mean systolic blood pressure in the interventional group was 145.05 ±16.03SD during the pretest and after intervention it was reduced into 139.52 ±12.45 SD in post test I, 137.82 ±10.83 SD in post test II and 130.10 ± 8.58 SD of the subjects in posttest III. The mean diastolic blood pressure in the interventional group was 94.30 ±10.09SD and after intervention it was reduced into 90.02 ±7.67 SD in posttest I, 89.95 ±6.76 SD in post test II and 84.75 ± 5.20 SD in posttest III. In intervention group, subjects had mean value of 230.68 total cholesterol in pretest. After intervention mean value of total cholesterol reduced into 190.88 in post test and shows significant at p <.0.001 level. In case of LDL in pretest shows the mean value of 151.38 and in post test decreased in to 127.06 after intervention in the interventional group which indicate significant difference at p 0.001 level. There was no significant reduction in control group. The effectiveness of educational intervention and garlic soaked with honey shows significant reduction in blood pressure and lipid profile among the subjects in the interventional group.

Key Words: *Systolic blood pressure, diastolic blood pressure, garlic soaked with honey, lipid profile*

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I. Introduction

Hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure. Hypertension is a serious medical condition and can increase the risk of heart, brain, kidney and other diseases. Globally, an estimated 26% of the world's population (972 million people) has hypertension, and the prevalence is expected to increase to 29% by 2025, driven largely by increases in economically developing nations (WHO).The American Heart Association/ American stroke Association recommends a diet that is low in sodium, is high in potassium, and promotes the consumption of fruits, vegetables, and low-fat dairy products for reducing BP and lowering the risk of stroke. Other recommendations include increasing physical activity 30 minutes or more of moderate intensity activity on a daily basis and losing weight for overweight and obese persons. Sartik et al., 2017 reported based on work, the highest incidence of hypertension among farmers/fishermen/laborers is 39.9%. Research conducted by Oktadoni et al. (2018) high hypertension caused by the habit patterns of people who tend to marinate processed seafood, and the effects of this lifestyle cause a tendency for hypertension to occur in coastal areas.

Ried K. (2014) conducted a meta-analysis including 20 clinical trials suggested garlic to be superior to placebo in lowering BP in hypertensive patients on average by 8–9 mmHg in SBP and 6–7 mmHg in DBP, *P*<0.0001). Sharifi *AM* (2003) Other potential mechanisms of action for garlic's effect on hypertension have been proposed, including the potential of garlic blocking angiotensin-II production by inhibition of the angiotensin-converting-enzyme (ACE), as suggested in a number of cell culture and animal studies**.** Shouk(2014) reported several mechanisms of action for the blood pressure lowering properties of organosulfur compounds in garlic have been postulated, including mediation of intracellular nitric oxide (NO) and hydrogen sulfide (H_2S) production as well as blockage of angiotensin-II production, which in turn promotes vasodilation and thus reduces the blood pressure. The main aim of the study is to assess the effectiveness of educational intervention and garlic soaked with honey among fishermen with primary hypertension.

II. Material And Methods

Quantitative research approach was selected for this study. Multistage random sampling technique was used to select 60 samples for interventional group and 60 for control group from villages where fishermen at Parangipettai Panchayat Union,Cuddalore district, Tamilnadu. Ethical approval obtained from the institutional human research ethics committee. Formal permission was obtained from the panchayat union president and village leaders of the selected fishermen villages. Health education given by using flashcard, video assisted teaching and also distributed information brochure. During the intervention garlic soaked with honey 10 grams given daily in the morning after breakfast orally for 8 weeks. Monitored regularly in a diary and also checked at interval whether the subjects have taken the garlic soaked with honey, preparation given to them periodically and also as on when needed. After the intervention the post test was done at periodical interval at 2 week, 6 week and 10 week.

III. Result and discussion

Table no 1 revealed that homogeneity of demographic variables such as age, education, marital status, religion, type of family, number of family members and monthly income of the family in interventional group and control group.

Table 1: Distribution of demographic profile of the subjects in interventional group and control group

N=120

Demographic variables		Interventional (N=60)		Control (N=60)		Chi square value	p value
		n	%	n	%		
Age in years	21-35 years	16	26.67	17	28.33	0.61	0.71 (NS)
	36-45 years	18	30.00	14	23.34		
	46-59 years	26	43.33	29	48.33		
Education	Illiterate	30	50.00	39	65.00	2.82	0.24 (NS)
	Primary	21	35.00	14	23.33		
	Higher secondary	9	15.00	7	11.67		
	Graduate	0	0.00	0	0.00		
Marital status	Married	56	93.33	55	91.67	0.12	0.73 (NS)
	Unmarried	4	6.67	5	8.33		
	Divorced	0	0.00	0	0.00		
	Separated	0	0.00	0	0.00		
Religion	Hindu	51	85.00	52	86.67	0.09	0.96 (NS)
	Muslim	0	0	0	0		
	Christian	9	15.0	8	13.33		
Type of family	Nuclear family	42	70.00	43	71.67	0.04	0.84 (NS)
	Joint family	18	30.00	17	28.33		
No of family members	2 -4 members	38	63.33	39	65.00	0.07	0.96 (NS)
	5 -6 members	13	21.67	13	21.67		
	7 -10 members	9	15.00	8	13.33		
Monthly income of the family	> Rs.20001	4	6.67	6	10.00	1.14	0.77 (NS)
	Rs.10001-20000	14	23.33	10	16.67		
	Rs.7001-10000	8	13.33	9	15.00		
	Rs.5001-7000	34	56.67	35	58.33		
	Rs.3001-5000	0	0.00	0	0.00		
	<Rs.3000	0	0.00	0	0.00		
Family history of hypertension	Yes	13	21.67	10	16.67	0.48	0.49 (NS)
	No	47	78.33	50	83.33		

NS –non significant

Most of the subjects (43.33% in interventional group and 48.33% in control group) between the age group of 46 to 59 years. In case of educational status 50% were in interventional group and 65% of the subjects were illiterate in control group. With regard to marital status 93.33% of the subjects were married in interventional group and 91.67% of them were married in control group. It was found that religion of the subjects 85% of them were Hindus in interventional group and 86.67% were participated in control group. Around 70% of the subjects were from nuclear family participated in interventional group and control group 71.67% subjects were participated. Number of family members in the study subjects, most of them having 2 -4 members in the family 63.33% were participated in the interventional group and 65% in the control group. Most of the subjects said that their monthly income between Rs.5001 to Rs.7000 56.67% were in interventional group and 58.33% of the subjects were participated in the control group. In interventional group. 21.67% of the subjects had family history of hypertension and 16.67% of the subjects in control group also reported family

history of hypertension. The chi square analysis revealed that all demographic variables had level of significance greater than 0.05 and shows non significant. Therefore both the groups were found to be identical, homogeneous and comparable.

Table 2: Mean systolic blood pressure of the subjects in the Interventional group and the control group before and after intervention

N=120

Group	Test	Mean	SD	Mean difference	One way Repeated measures ANOVA F-test	P value
Interventional N=60	Pre test	145.05	16.03	14.95	41.62	**0.00 1 *** (S)**
	Posttest-I	139.52	12.45			
	Posttest-II	137.82	10.83			
	Posttest-III	130.10	8.58			
Control N=60	Pre test	145.25	20.41	1.22	1.59	0.18 (NS)
	Posttest-I	144.88	18.58			
	Posttest-II	144.62	16.06			
	Posttest-III	144.03	15.75			

NS - Non significant S- * highly significant at P≤0.001**

The table no 2 showed that the mean systolic blood pressure in the interventional group was 145.05 ±16.03SD during the pretest and after intervention it was reduced into 139.52 ±12.45 SD in post test I, 137.82 ±10.83 SD in post test II and 130.10 ± 8.58 SD of the subjects in posttest III. Repeated measures F-test analysis shows that, mean overall systolic blood pressure was statistically significant difference between pre-test and posttest-III(F =41.62 P ≥ 0.001).

But in control group the mean systolic blood pressure during pretest was 145.25 ± 20.41 SD, posttest I it was 144.88 ± 18.58 SD, post test II it was144.62 ± 16.06 SD and in posttest III it was 144.03 ± 15.75 SD. Repeated measures F-test analysis found that, the mean systolic blood pressure was not statistically significant difference between pre-test and posttest-III (F = 1.59, P ≥ 0.05). Therefore, it was concluded that educational intervention and garlic soaked with honey significantly reduces SBP among the fishermen with primary hypertension. The current study findings were supported by the following studies. Mulawarman, et al(2021) analysed systolic blood pressure was lower in garlic group (mean difference -3.62 [-5.43, -1.80], p = <0.000001; I^2: 85%, p < 0.0001). Aslani et al (2016) revealed reduction in systolic blood pressure was observed interventional group (37 ± 10, P = 0.01) shows significance.

Table 3: Mean Diastolic blood pressure of the subjects in the Interventional group and the control group before and after intervention

N=120

Group	Test	Mean	SD	Mean difference	Oneway Repeated measures ANOVA F-test	P value
Interventional N=60	Pre test	94.30	10.09	9.55	39.14	**0.00 1 *** (S)**
	Posttest-I	90.02	7.67			
	Posttest-II	89.95	6.76			
	Posttest-III	84.75	5.20			
Control N=60	Pre test	94.45	12.02	0.95	1.54	0.18 (NS)
	Posttest-I	94.23	11.17			
	Posttest-II	93.58	10.48			
	Posttest-III	93.50	10.32			

NS- non significant S *- highly significant at p≤0.001**

The table no 3 showed that the pretest the mean diastolic blood pressure in the interventional group was 94.30 ±10.09SD and after intervention it was reduced into 90.02 ±7.67 SD in posttest I, 89.95 ±6.76 SD in post test II and 84.75 ± 5.20 SD in posttest III. Repeated measures F-test analysis shows that, mean overall

diastolic blood pressure was statistically significant different between pre-test and posttest-III(F =39.14 P ≥ 0.001) in the interventional group. But in control group the mean diastolic blood pressure during pretest was 94.45 ± 12.02 SD, posttest I it was 94.23 ± 11.17 SD, post test II 93.58 ± 10.48 SD and in posttest III it was 93.50 ± 10.32 SD. Repeated measures F-test analysis shows that, mean overall diastolic blood pressure was not statistically significant different between pre-test and posttest-III(F = 1.54, P ≥ 0.18). Therefore, it was concluded that educational intervention and garlic soaked with honey was significantly reduces diastolic blood pressure among the fishermen with primary hypertension..

The current study findings were supported by the following studies. Mulawarman, et al(2021) reported the meta-analysis that diastolic blood pressure was lower in garlic group (mean difference -1.40 [-2.72, -0.08], p = <0.00001; I^2: 86%, p = 0.04) on follow-up. Aslani et al (2016) revealed that reduction of diastolic blood pressure was observed in interventional group (24 ± 1, P = 0.02) after intervention.

Table 4: Effectiveness of educational intervention and garlic soaked with honey on blood lipid profile in the interventional group and the control group before and after intervention among fishermen with primary hypertension

N=120

Group	Biochemical variable	PRETEST		POSTTEST		Mean difference	Student paired t-test	p value
		Mean	SD	Mean	SD			
Interventional group	Total cholesterol	230.68	56.72	190.88	43.44	39.8	7.96	**0.001*** (S)**
	Triglyceride	148.06	68.08	149.25	44.92	-1.19	0.16	0.88 (NS)
	HDL	39.95	8.24	41.80	7.75	-1.85	1.98	**0.05* (S)**
	LDL	151.38	52.59	127.06	42.94	24.32	3.85	**0.001*** (S)**
Control group	Total cholesterol	213.65	50.66	214.14	49.84	-0.49	0.23	0.81 (NS)
	Triglyceride	160.24	48.08	165.02	42.74	-4.78	1.37	0.17 (NS)
	HDL	38.23	9.68	38.55	10.09	-0.32	0.44	0.66 (NS)
	LDL	148.78	43.27	152.49	43.89	-3.71	1.83	0.07 (NS

NS -non significant * S highly significant *S- significant**

The above table revealed that in intervention group, subjects had mean value of 230.68 total cholesterol in pretest. After intervention mean value of total cholesterol reduced into 190.88 in post test and shows significant at p <.0.001 level. When comparing triglyceride in pre test shows the mean value of 148.06 and 149.25 in post test which indicate non significant difference exist between before and after intervention. Regarding HDL mean value was 39.95 in pretest after intervention it was increased into 41.80 which shows significant association in interventional group.In case of LDL in pretest shows the mean value of 151.38 and in post test decreased in to 127.06 in interventional group after intervention indicate significant difference at p 0.001 level. In control group all the mean values in lipid profile shows non significant difference in pretest and post test with routine care.

Mulawarman,(2021) reported total cholesterol was lower in garlic group (mean difference -17.17 [-28.57, -5.78], p < 0.00001; I^2: 86%, p = 0.003). Aslani et al (2016)Results showed a significant decrease in total cholesterol (changes from baseline: 40.8 ± 6.1, P <0.001) and low-density lipoprotein-cholesterol (29.8 ± 2.6, P < 0.001), in the garlic group, in comparison with other groups. Ehsan Shabani et al. (2019) and Yue- E Sun (2018) identified the values of TC (SMD=–1.26, 95% CI, –1.86 to –0.66), low-density lipoprotein (LDL) (SMD=–1.07, 95% CI, –1.67 to –0.47), and high-density lipoprotein (HDL) (SMD=0.50, 95% CI, 0.06–0.94) after taking garlic in the interventional group. while there was no significant difference of TG in the 2 groups (SMD=–0.16, 95% CI, –0.87–0.55). The above study results were supported the current study findings.

IV. Conclusion

Several clinical trials have suggested that garlic supplements are highly tolerated and considered as a complementary treatment option for hypertension, lowers systolic and or diastolic blood pressure and has beneficial effect in controlling elevated cholesterol. Future large scale trials were needed to investigate whether standardized garlic preparations could provide a safe alternative or complementary treatment option for hypertension in clinical practice.

References

[1]. Aslani N, Entezari MH, Askari G, Maghsoudi Z, Maracy MR. Effect of garlic and lemon juice mixture on lipid profile and some cardiovascular risk factors in people 30-60 years old with moderate hyperlipidaemia: A randomized clinical trial. International Journal of Preventive Mededicine.7:95.

[2]. Begossi., Mariana PassosCavichiolo., and Cristina Brandt Friedrich Martin Gurgel (2013). Blood Pressure and Hypertension among Coastal Fishermen in South-east Brazil. Journal of Community Medicine and Health Education, 4:1 DOI: 10.4172/2161-0711.1000261

[3]. Doddamani, A., Ballala, A.B.K., Madhyastha, S.P. *et al.* (2021). A cross-sectional study to identify the determinants of non-communicable diseases among fishermen in Southern India. *BMC Public Health* 21, 414 https://doi.org/10.1186/s12889-021-10376-w

[4]. *Gopal Muthukrishnan, Suresh BalanKumaraswamy Pillai Uma, Anantharaman V. V.(2018)* A cross sectional study of hypertension and their risk factors in fishermen of Chennai district, International journal of community medicine and public health. 5:6

[5]. Mulawarman, et al(2021)Garlic effect on reduce blood pressure and cholesterol in patients with and without hypertension: a systematic review and meta-analysis of randomized controlled trials, Journal of Hypertension.39 - Issue - p e4 doi: 10.1097/01.hjh.0000752400.24367.fa

[6]. Rao CR, Kamath VG, Shetty A, Kamath A. (2012) High blood pressure prevalence and significant correlates: a quantitative analysis from coastal karnataka, India. ISRN preventive medicine.

[7]. Ried K. Effect of garlic on blood pressure, serum cholesterol and immunity: updated meta-analyses and review. *J Nutr*. 2014[Google Scholar] [Ref list]

[8]. *Sharifi AM, Darabi R, Akbarloo N(2003)* Investigation of antihypertensive mechanism of garlic in 2K1C hypertensive rat, *Journal of Ethnopharmacology.86(2-3):219-24*

[9]. *Yun HM, Ban JO, Park KR, Lee CK, Jeong HS, Han SB, Hong JT (2014)* Potential therapeutic effects of functionally active compounds isolated from garlic.*Pharmacolological Therapy. 142(2):183-95.*

[10]. Yue-E Sun (2018) Anti-hyperlipidemia of garlic by reducing the level of total cholesterol and low-density lipoprotein, Medicine (Baltimore). 97(18): e0255.

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