International Journal of Applied Research

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Application of "rule of halves" in rural adult population, Komerika

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Abstract
Introduction: Evidence from clinical practice and from the literature suggest that approximately half of most common chronic disorders are undetected, that half of those detected are not treated, and that half of those treated are not controlled: the 'rule of halves'. Workload in primary care would increase by at least 12% if all common and important chronic disorders were fully diagnosed, treated and followed up; the accompanying effects on prescribing costs would be complex, but not necessarily inflationary.

Objective: The aim of the present study was to assess the applicability of the rule of halves in a rural adult population in Komerika to evaluate its relevance in establishing levels of awareness, thus control of hypertension in general population.

Materials and Methods: A cross‑sectional community survey was done to include 105 men and 145 women aged >20 years of age in Komerika, Nellore district. Hypertension was assessed using standardized recording, structured schedule on diagnosis and antihypertensive drug treatment according to The Indian hypertension guidelines for High Blood Pressure by the PHC medical officer.

Results: The overall prevalence of hypertension in this population was 42.41% (106/250). Of these 106 individuals with hypertension, only 62 (58.49%) were known hypertensive's. Of the 62 known hypertensives, 42 subjects (67.74%) were under any kind of antihypertensive therapy. Of these 42 individuals, only 11 (26.19%) had blood pressure under control.

Conclusion: The 'rule of halves' when taken as a standard of measurement showed that the studied population had poor awareness, comparatively better treatment and inadequate control of Hypertension. Thus, there is a need to effectively combat the burden of hypertension in this population of Komerika.

Keywords: Hypertension, population, rule of halves, Rural

1. Introduction

One in three adults worldwide has high blood pressure. Hypertension increases the risk of heart attack, stroke, kidney failure and much other associated co morbidity. Treating raised blood pressure and maintaining it below 140/90 mmHg is associated with a reduction in cardiovascular complication. The theme for World Health Day (WHD) 2013 is "high blood pressure". The goal of WHD 2013 is to reduce heart attacks and strokes. Keeping in line with the WHO, Government of India, Country Cooperation Strategy, the WHO 2013 events in India are aimed at raising the awareness amongst national policymakers, program managers and other stakeholders on the need to strengthen the Indian health system to make it competent enough to respond to hypertension and related co morbidities [1].

One of the factors usually associated with increasing burden of non communicable diseases like CVD's is inability to obtain preventive services. This is true of hypertension as well. In spite of the efforts, prevention, early detection and treatment, control of hypertension is still suboptimal and unsatisfactory not only in developing countries like India but also in well developed countries.

A review of medical literature suggests that approximately half of patients with raised blood pressure (BP) are undetected that half of those detected are not treated, and that half of those treated are not controlled (rule of halves). Studies across populations in developed world have shown that awareness and management of high BP levels are far from optimal [2-9]. The studies speak of rule of halves as not being valid for screening and treatment of hypertension in industrialized countries; however, it might still be valid for developing countries [5, 6]. The disagreement on the validity of this rule serves as crude reminder that BP control is far from optimal.

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The extent to which hypertension is detected and adequately treated in the general population is often described by the 'rule of halves'.

The aim of the present study was to assess the applicability of the rule of halves in a rural adult population in Komerika to evaluate its relevance in establishing levels of awareness, thus control of hypertension in general population.

2. Detailed Research Plan
2.1 Research Approach: Quantitative Approach.
2.2 Research Design: Descriptive design.

2.3 Research Setting: The study was conducted in Komerika a rural area of Nellore.

2.4 Sampling Technique: Convenience sampling technique

2.5 Sample Size: A total of 250 samples were included in this study.

3. Results and discussion

Table 1: Frequency and Percentage Distribution of Demographic Data in Komerika N=250.

Sl No	Demographic Variable	Frequency	Percentage
1	**AGE**		
	a. 20-30 years	23	9.2%
	b. 31-40 years	76	30.4%
	c. 41-50 years	91	36.4%
	d. 51-60 years	60	24%
2	**Family**		
	a. Extended Family	5	2%
	b. Joint Family	68	27.2%
	c. Nuclear Family	177	70.8%
3	**Sleeping Hours**		
	a. < 6 hrs	46	18.4%
	b. 6 – 8 hrs	160	64%
	c. 8 – 10 hrs	42	16.8%
	d. >10 hrs	2	0.8%
4	**Exercise**		
	a. Aerobic	44	17.6%
	b. Anaerobic	8	3.2%
	c. Walking	193	77.2%
	d. Yoga	5	2%
5	**Food Pattern**		
	a. Vegetarian	20	8%
	b. Non – vegetarian	69	27.6%
	c. Mixed	159	63.6%
	d. Ova-vegetarian	2	0.8%
6	**Type Of Salt**		
	a. Rock salt	84	33.6%
	b. Salt	97	38.8%
	c. Iodized	69	27.6%
7	**Habits**		
	a. Smoking	41	16.4%
	b. Alcohol	28	11.2%
	c. Tobacco	19	7.6%
	d. Drug abuse	1	0.4%
	e. None	161	64.4%
8	**Use Of Biriyani**		
	a. Daily	4	1.6%
	b. Weekly	20	8%
	c. Bi-weekly	15	6%
	d. Monthly	144	57.6%
	e. No	67	26.8%
9	**Intake Of Fish**		
	a. Daily	42	16.8%
	b. Weekly	108	43.2%
	c. Bi weekly	33	13.2%
	d. Monthly	50	20%
	e. Not much	17	6.8%
10	**Are You Having Stress**		
	a. Yes	39	15.6%
	b. No	211	84.4%
11	**Are You A Known Hypertensive**		
	a. Yes	50	20%
	b. No	200	80%

Table 2: Frequency and Percentage Distribution of Blood Pressure by rule of halves in Komerika. N=250

Sl. no	category	Frequency	Percentage
1	The whole community	250	100%(n=250)
2	Normotensive subjects	144	57.6%(n=250)
3	Hypertensive subjects	106	42.4%(n=250)
4	Undiagnosed hypertension	44	41.50%(n=106)
5	Diagnosed hypertension	62	58.49%(n=106)
6	Diagnosed but untreated	20	32.25%(n=62)
7	Diagnosed and treated	42	67.74%(n=62)
8	Inadequately treated	31	73.80%(n=42)
9	Adequately treated	11	26.19%(n=42)

Of the total 250 participants, 106 individuals (106/250) that are 41.50% had hypertension. The prevalence of self-reported hypertension among patients reporting to PHC was 41.50% (44/108). However, the prevalence of self-reported hypertension among diagnosed patients of hypertension (aware) on examination by investigator was (62/106; 58.49%). Of these 62 aware hypertensive subjects, 67.74% (42/62) were under treatment for hypertension. Of those 42 treated, 31 got adequately treated that is 73.80% (31/42) got their BP under control. Of these 62 individuals (aware and treated), 26.19% (11/42) had BP under control (adequately treated) as per definitions. Of 62 aware hypertensive, 20 patients that are 32.25% (20/62) were not receiving any kind of drug treatment at all.
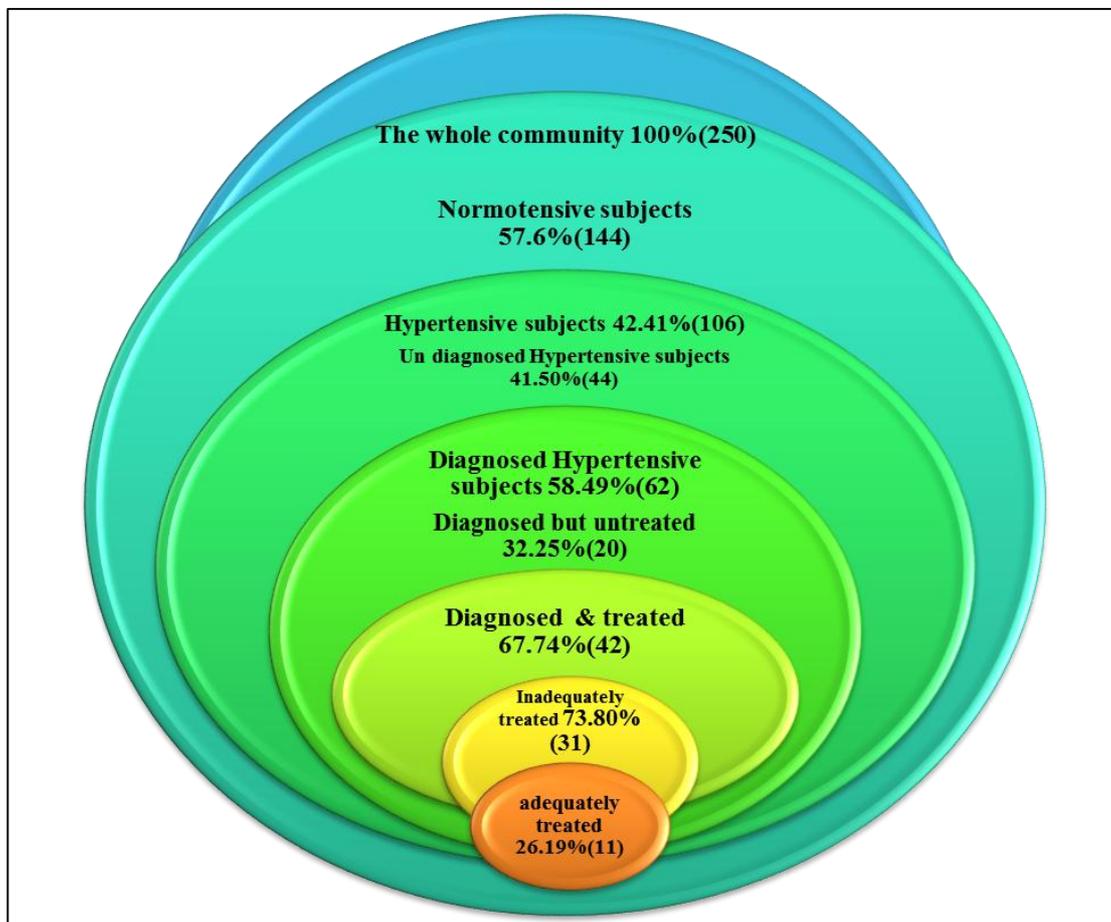

Fig 1: Pictorial description of rule of halves as applied to study population in Komerika.

3.1 Association of socio Demographic Variables with the blood pressure in Komerika.

With regard to the association there is a significant association of demographic variables with Age, income, Working members in family, type of ventilation, sleeping hours, sleeping pattern, exercise, food pattern, type of salt used, use of fast food, use of Biriyani, hotel food and worship of god, are you a known hypertensive and the demographic variables like gender, education, family, occupation, Type of house, Type of oil used for cooking, amount of oil used for per day, amount of vegetables per day, habits, Habits, entertainment, intake of fish, are you having stress and are not significant.

4. Conclusions

These results identified major unmet needs in awareness, treatment, and control of hypertension. Thus, there is a need to effectively combat the burden of hypertension in this population of Komerika. Education about lifestyle modification and awareness and adherence to treatment is to be carried out on a large scale and in a systematic manner in rural areas also.

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