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Five steps school based approach for screening of diabetes and hypertension

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Abstract: *Background:* In India non communicable diseases accounted for 53% of all deaths in 2005. It is estimated to increase by 18% by 2015. Pre-mature onset of disease and death in India is a major concern. Issues like the limited resources, scarcity of trained health personnel and lack of motivation for community programme have increased the existing problems. *Aim:* To motivate community people for screening of diabetes & hypertension through school based approach. *Materials and Methods:* A cross sectional study was carried out at school settings. Five steps school based approach was used to motivate parents, family members, school staff and community people for screening of DM & HT and their risk factors. Screening camps were arranged and screening was done for hypertension and diabetes. The impact of motivation was assessed and yield rates were calculated. *Results:* Total 178 participants attended the screening camp. Of that 47(26.4%) were men, 65 (36.60%) were of low risk age group, 30 (16.9%) were having hypertension [8/30 (26.7%) people were newly detected]. Similarly, 21(11.8%) were having diabetes and 7 / 21(33.3%) were newly detected. *Conclusion:* In the present study yield of screening programme was quite good in which 34.8% community households were motivated.

Keywords: Screening, motivation, Diabetes, School based approach, school child

Introduction

Globally deaths from Non Communicable Diseases (NCDs) are expected to increase from 55% in 1990 to 73% by 2015. The leading causes of deaths by 2020 will be Ischemic Heart Disease, depression, cerebro - vascular accidents, Road Traffic accidents etc [1]. In India non communicable diseases accounted for 53% of all deaths in 2005 and it is estimated to increase by 18% by 2015 [2]. Estimates in India have shown that, 23 million out of 63 million Coronary Vascular Disease [CVD] patients would be less than 40 years of age and 70 million people will become Diabetics by 2025 [3].

These non Communicable Diseases are linked by common preventable risk factors like tobacco consumption, alcohol intake, unhealthy diet, physical inactivity, Diabetes Mellitus [DM] and Hypertension [HT].These risk factors appearing at early age. Pre-mature onset of disease and death in India is a matter of great concern. The added issues like the limited resources, scarcity of trained health personnel and dual burden of communicable and non communicable diseases have increased the existing problems. The other major barriers in prevention and control of theses chronic diseases are lack of community based screening programme and lack of motivation for change in health behavior among the community people. Until symptoms / signs appear people fail to use the services provided for screening and treatment of these chronic illnesses. At present there are no community based screening programmes for detection of these diseases as it involves lot of expenses.

Traditionally, public health approaches to NCD control have been a high risk strategy or population strategy targeting persons with risk factors. There is lack of integration of prevention, surveillance, screening and management at primary and secondary health care settings. New comprehensive, cost effective strategies are required for developing countries like India. This calls for a need to

develop a new and low cost strategy for prevention and control of Non communicable diseases. The school setting provides an effective means to improve the peoples' health through young children [4-5]. School children can play an important role in health promotion, prevention and risk assessment of diseases [6].

Schools can also serve as training or service centers where, children and parents can be motivated for change in health behavior, as well as support the health programmes meant for promotion health of the family and community [5]. Thus, an attempt was made using five steps school based approach to motivate the parents, family members of school children and community people for screening of Diabetes and Hypertension.

Objectives:

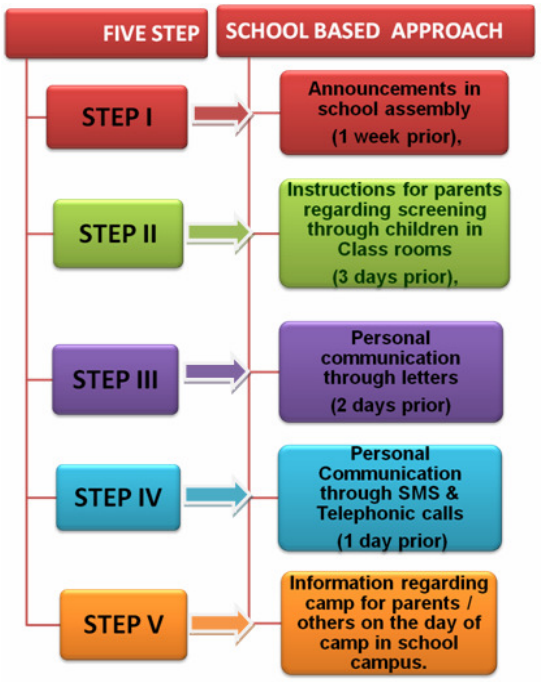
1. To develop a new five steps school based motivation strategy for screening of diabetes and hypertension in the community.
2. To Screen for Hypertension, Diabetes and their risk factors in the population by using the new five steps school based motivation strategy.

Material and Methods

This is a cross sectional study carried out at school settings, in an urban area of Belgaum of North Karnataka. Two schools, one each from North & South zone were selected randomly for study after obtaining permission from school authorities. Two screening camps were organized on 19th and 20th of November 2010 in school settings for the parents, family members, school staff and community members. Two hundred fifty students from 8th and 9th standard who were educated and trained by study team in assessment of risk factors of Hypertension (HT) and Diabetes (DM) were selected for motivating the family and community members.

A new five steps school based motivation strategy was adopted for motivating the parents and family members for screening of DM & HT (Figure 1).

Figure-1: Five Step School Based Motivation strategy for screening



Data on socio demographic variables [age, sex, education, Occupation, Socio economic status] were collected and various risk factors [family history of DM / HT, physical inactivity, treatment history etc] were assessed for all the members who attended the screening camps, using pre- structured questionnaire. The height, weight, waist circumference, blood pressure were measured and fasting / random blood sugar was tested. The hypertension was diagnosed if blood pressure is > 140/90 mm Hg and known hypertensives on treatment were noted [7]. Diabetes was diagnosed if, fasting blood glucose ≥ 126 mg/dl or random blood sugar ≥ 180 mg /dl and known diabetics on treatment were also noted [8]. Proportions, Percentages, Response rate, drug adherence rates and Yield rates were calculated and chi square test was used to know the significant difference between various groups.

Results

Out of 178 people who were motivated for screening, 47 (26.4%) were men, 131(73.6%) were women, 99 (55.6%) were graduates, 16 (9%) were illiterates and almost quarter were house wives. Among the participants 128(71.9%) were from middle class family

whereas, only 9(5.06%) were motivated from upper class families, 91(51.1%) were school staff, 62(34.83%) were parents and remaining 25(14.1%) were from community. Sixty five (36.60%) participants were of low risk age (<35yrs); an impact of motivation was as shown in table 1.

Table-1: Impact of School Based Motivation Strategy for Screening of Diabetes and Hypertension

Type of Participants	Total No (%)	Type of Motivation	Impact of Motivation	
			Expected participants	Attended No (%)
Teaching /staff	91 (51.10%)	Opportunistic (Passive)	98	91 (92.90)
Parents/family members	62 (34.80%)	Motivation (Active)	250	62 (24.80)
Community	25 (14.10%)	Challenged (Passive)	250	25 (10.00)
				n = 178

Table-2: Age Wise Prevalence of Hypertension & Diabetes mellitus

Age	Risk	Total No (%)	Hypertension No (%)	Diabetes No (%)
< 35	Low	65 (36.60)	4 (6.15)	4 (6.15)
36 - 49	Moderate	72 (40.50)	7 (9.72)	9 (12.5)
>50	High	41 (23.00)	19 (46.34)	8 (19.51)
			$\chi 2 = 12.6$ ($P < 0.01$*)	$\chi 2 = 2.0$ ($P > 0.1$)
				n = 178

Overall 29 (16.3%) participants had a family history of HT, DM or both and 16 (9%) had a history of disease among family members who were not related by blood [spouse, in laws etc]. The assessment of risk factors revealed that 100(56.2%) people were physically inactive, 25 (14%) were obese and 68 (37.6%) were overweight, which are the most prevalent risk factors for DM, HT and CVD. The study results showed that, 12(6.7%) having high normal blood pressure and the age wise The prevalence rates of hypertension increased from low risk age group (< 35 yrs) to high risk age group (> 50 yrs) (Table-2).

Among the study group 30(16.9%) were hypertensive and 22(11.8%) were diabetics. Of them one third patients were detected newly during the screening camp; the drug compliance among hypertensive and diabetic is as shown in the table-3. The impact and yield of a screening programme was as shown in the table-4.

Table-3: Distribution of Hypertensive & Diabetics and their Drug Compliance

	Hypertension No (%)	Diabetes No (%)
Old	22 (73.30)	14 (66.70)
New	8 (26.70)	7(33.30)
Total	30 (16.90)	21 (11.80)
Compliance of treatment		
Controlled	14 (63.60)	9 (64.30)
Uncontrolled	8 (36.40)	5 (35.70)
	n = 22	n = 14
	p > 0.1	p > 0.1
		n = 178

Table-4: Overall Yield of Screening Programme

Screening	Hypertension No (%)	Diabetes No (%)
New	8 (5.13)	7 (4.27)
Old	22	14
Total	30	21
	n1= 156 (p<0.02)	n 2= 164 (p> 0.1)
		n = 178

Discussion and Conclusion

Chronic diseases can be controlled effectively only when the community is adequately motivated to participate in health promotion activities. Members of the community need to be provided with knowledge about disease which will allow them to adopt healthy practices related to chronic diseases. The school children can play an important role in providing this knowledge to change the lifestyle and to motive family members as well as community members towards healthy practices [9]. In this study a new five steps school based motivation strategy was developed & tested to motivate parents, family members and community people for screening of HT & DM. Many projects have been conducted for detecting hypertensive's / diabetics but, few field experiments have been conducted to select the best technique for motivating persons to have their blood pressure / blood sugar measured. A new strategy was used where, sending personal communications and letter plus a gift offer gave yield rate ranging from 1.7 % to 2.6 % [10].

This was far less compared to the present study where, five steps school based strategy motivated 24.8% households of school children and 10% of community households. We found that the yield rate was better with school based approach than a direct community approach through letters. Similar study (Heart Smart Study) was carried out at school settings where in health risk status evaluation, screening services for diabetes & hypertension were provided to school staff and community people [9]. Elevated blood pressure was found in 24% teachers and 50% were overweight [9]. In our study 52.77% teachers were overweight, 5.56% were hypertensive and 5.56% were having diabetes mellitus. The prevalence of overweight was quite high among the teachers, which is matter of concern and indicates unhealthy practices towards health in this educated community.

The child to child concept was used in slums of Mumbai for motivating people to participate in the Pulse Polio Immunization campaigns. This campaign achieved 100% response rate for immunization among the children covered by the child to child group [11]. In our study children were partially successful in motivating their parents and family members as only 24.8% utilized the services provided at school settings. The poor yield rate could be, in Indian culture child's words are not taken seriously and probably in our study we did not use mass media, paramedical staff or health workers for motivation of parents. In another study in school settings, Child to Child group were asked to spread health message on Tuberculosis gave the yield rate around 27.69% for screening of tuberculosis [9].The yield rate for motivation was almost similar to our study.

In the present study yield of screening programme was quite good in which 34.8% community households were motivated. The maximum school staff attended the camp, as opportunity was provided at work set up. Screening at work place appears to be more effective as 92.5% school staff utilized the opportunity. Many young age (36.60%) and middle age (40.5%) people were motivated when compared with that of high risk age group (23.0%) which could be because of increased awareness in the younger population. The periodic regular screening for diabetes and hypertension is the need of the hour. This will help to promote health, early detection of these NCDs and their management. The study recommends systematic control based studies for larger implications as it did not use the control group for comparison of the efficacy of this low cost strategy.

Participatory approaches in promoting community health and community education have shown better outcomes in chronic disease care and these approaches have been well acknowledged in the developed countries. Health promotion school based strategies in various settings have been on trial in developing countries. The workplace, institutions especially, schools etc have been called for such activities and to develop policies that contribute to health promotion [12]. This new school based strategy appears to be feasible and effective as school children play an important role in spreading health messages. In a poor resources country like India the school children can play a very important role and can bridge the gap between the community and health care system. Therefore, we should not underestimate or

forget our important resources, the children, while working positively towards Health for All.

The study recommends community education through school health education especially in adopting healthy life style and changing attitude towards health care seeking behavior for health promotion. The study also recommends development and implementation of such low cost school based strategies at school setting. There is a need to develop, new policies in school health programme, to develop health skill oriented school curriculum and new strategies towards prevention and control of Non Communicable diseases especially Hypertension and Diabetes.

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