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Original Research Article

Defects at birth, delay / disability, deficiency and diseases among 0 to 18 years age group in a Grama panchayath in Kerala –A Cross sectional study

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Abstract: Rasthria Bal Swasthya Karyakram (RBSK) Project -an initiative by Ministry of Health and Family welfare initiated in February 2013 aimed at screening of children in the age group 0-18 years for 4 Ds (birth defects, developmental delay / disability, deficiency and diseases) and management, through District Early Intervention Centres (DEICs). To find out the magnitude of birth defects, developmental delay / disability, deficiency and diseases among the age group 0 to 18 years in Pallippad Grama Panchayath, Alappuzha, Kerala using the services of trained ASHA workers. A cross sectional survey using census method was conducted in the Panchayath applying RBSK screening tool, by trained ASHA workers who conducted house to house visits and screened all the children in the age group of 0 to 18 years. The 4Ds were confirmed among screen positive children at medical camps by experts using standardized tools and clinical impression. Out of the total 3481 children screened, ASHA workers identified 640 children, among whom 123 were identified as having only clinically insignificant problems by scrutiny of the forms by the Principal Investigator and 81 did not attend the medical camp. Among 436 children who attended the medical camp, 37 (8.5 %) had birth defects,,40(9.2%) developmental delay,215 (49.3%) disability,19 (4.5%) deficiency and 274 (62.8%) had diseases alone or in combination. It was found feasible to train ASHA workers to screen 4Ds using RBSK screening tool under supervision and confirm the same using medical camp approach with the help of experts.
Keywords: Rasthria Bal Swasthya Karyakram, Defects, Developmental Delay / Disability, Deficiency, Diseases.

INTRODUCTION

Early years of life are very crucial for the development and survival of children. Though in our country, the health facilities have remarkable improvement, there is no systematic approach till now for screening and early detection of defects, developmental delay/disabilities, deficiencies and diseases among children. Traditionally the health system in India has been focusing on mortality first and later on morbidity, but the recent NFHS 4 data highlight the need for including birth defects and delay/disability also [1]. In 2005 the United Nations Children's Fund estimated the number of children with disabilities under age 18 at 150 million [2]. As per 2011 Census of India, there are 7,862,921 children with disability below 19 years age group [3]. Out of every 100 babies born in this country annually, 6 to 7 have birth defect. In Indian context, this would translate to 1.7 million (9.6%) birth defects annually. Developmental delays are common in early childhood affecting at least 10 percent of the children. These delays, if not intervened timely, may lead to permanent disabilities with regard to cognition, hearing and vision [4]. Early intervention and management can prevent these conditions progressing into more severe and debilitating forms, thereby reducing hospitalization and resulting in improved school attendance. It is in this context that Government of India has initiated Rashtriya Bal Swasthya Karkyakram (RBSK) with initial screening of children from birth to 18 years of age, for selected health conditions including defects at birth, deficiencies, diseases and developmental delays including disabilities through trained mobile health teams and follow-up through District Early Intervention Centers (DEICs).

Although in RBSK, it is envisaged that the mobile team conduct screening at anganwadi level, schools and screening of new born in health facilities [4], the present study was done (i)to test the feasibility of screening of children by trained ASHA workers

through house to house survey in a grama panchayath(where no previous screening was done by mobile team under RBSK)using RBSK screening tool and an expert team confirming the diagnosis at PHC/sub centre level and (ii) to find out the magnitude of birth defects, developmental delay / disability, deficiency and diseases among the age group 0 to 18 years in one grama panchayath in Kerala. No RBSK reference data on the prevalence of various morbidities in the state is available. This study could provide a panchayath wise epidemiological data on 4Ds which will be expected to hold relevance for future planning of area specific services in the Kerala context of provision of 50% plan allotment to local self-Government institutions including grama panchayath.

MATERIAL AND METHODS

The study was done by Child Development Centre, Kerala (RBSK Nodal Centre for Kerala) with the support of Community Medicine Department, Government TD Medical College, and Alappuzha. The study was initiated with a district level stakeholders meeting with DMO, DPM, CDPO, Medical Superintendent of taluk hospital, block panchayat president and grama panchayat president and members. The RBSK screening tools were translated into the local language and back translation was done by an English language expert who is familiar with medical terms. Institutional ethical clearance was obtained from Institutional Ethical Committee, Child Development centre, Government Medical College, Thiruvanthapuram. Study period was 2014 February to 2015 March. The questionnaires were piloted in another panchayath area before administering to the parents/primary care givers of children.

The study was conducted at Pallipadu Grama Panchayat, Alappuzha district, Kerala. This study was trying to find out if it is possible to implement the programme in a typical grama panchayath in Kerala. Pallipadu grama panchayat is a true representation of Alappuzha district that is very near to coastal area, on the side of National Highway. It has the total population of around 24,143 with 3481 population in the age group of 0 -18 years. This Panchayat was selected on the basis of convenient sampling.

A cross sectional survey using census method through household survey was done by utilizing the services of ASHA workers who were given three days training and one day hands on training by the study team. Screening included all the children between the age group of 0-18 years in that Panchayath. .After getting informed written consent, ASHA workers conducted the survey by individual house visit and repeat visit if mother or child was not available on first visit. The field supervision and quality check of data collected each day was done by the Additional professor of community medicine with the help of post graduate students of the department. After completing the survey, medical camps were organized for confirmation of birth defect, delay/disability and diseases among those detected by ASHA. Four separate medical camps were conducted for 0 to 6 and 6 to 18 years children in PHC and sub centres. Two days medical camp was organized at Taluk hospital for those positive cases that were not able to attend the community level medical camps. The assessment of the screen positives were done by a multi-disciplinary team of consultants comprising of pediatrician, developmental therapist, clinical psychologist, speech therapist, dental surgeon, ophthalmologist and gynecologist. Child Development Referral Unit was started at Taluk Hospital located in the same panchayath and weekly follows up intervention services of clinical psychologist, developmental therapist and speech therapist were offered through this clinic in addition to the speciality services available at Taluk hospital. Lab investigations such as blood examination, X –ray etc done by utilizing the services of Taluk hospital, Haripad. No surgical intervention was carried out. No genetic study was carried out. Cases like undescended testis, cleft palate, hydrocephalus etc were refered to tertiary care centres. All the collected data was entered in MS-Excel sheet and analysed using SPSS software 16.0.All the qualitative data was summarized using proportions and percentage.

RESULTS

A total of 3481children were screened, including 1283 (36.9%) below 6 year old and 2198 (63.1%)6-18 year olds. Among below 6 year old children 672 (52.4%) were boys and 661 (47.6%) were girls and in 6-18 age group 1082 (49.2%) were boys and 1116 (50.8%) were girls (Table 1). Among these children 640 were found to be screen positives using RBSK screening tools done by ASHA workers. Among them123were found to have only clinically insignificant problems by scrutiny of the forms by the principal investigator and 81 did not attend the medical camp and 436 children attended the camp. Among 436 below 18 year old children, who attended the medical camp 37 (8.5%)children were confirmed to have birth defects,40 (9.2%) developmental delay ,215 (49.3%) disability,274 (62.8%) diseases and 19 (4.45%) deficiencies (Table 2).The defects included limb defect (1.8%), Down syndrome (1.1%), congenital heart diseases (1.1%),and cerebral Palsy (0.9%).Delay /disability confirmed were speech defects (30.7%),autism (5.7%), mental retardation (4.8%), learning disorder (2.1%), and attention deficit hyperactivity disorder (ADHD) (1.1%). Diseases confirmed were dental problems (23.2%), eye problems (11.5%), gynecological problems (7.8%), skin and mucous membrane problems (6.7%) and central nervous system problem (6.2%) like seizures, Bell 's palsy, migraine, hydrocephalus etc. Deficiencies confirmed were under weight (45.4 %) and over weight (14.2 %) according to BMI, pallor (1.8%) and vitamin deficiency (0.5%) on clinical examination (Table 2).

Table 1: Age &Gender of children

Age group	Boys N (%)	Girls N (%)	Total
Children Screened (N=3481)			
Below 6 years	672 (52.4)	661 (47.6)	1283(36.9)
6-18 years	1082(49.2)	1116(50.8)	2198(63.1)
Total	1754 (48.9)	1777 (49.6)	3481
Children Evaluated in medical camps (N=436)			
Below 6 years	82 (56.6)	63 (43.4)	145(37.5)
6-18 years	137 (47.1)	154 (52.9)	291(62.5)
Total	219 (50.2)	217 (49.8)	436 (100)

Table 2: Defects, developmental delay, disability, disease and deficiency confirmed in Medical Camps (n= 436)

Condition	1-6 yrs (n=145) N (%)	6-18 yrs (n=291) N (%)	Total (n-436) N (%)
Defect (Total)	16 (11.0)	21 (7.2)	37 (8.5)
Down syndrome	2 (1.4)	3 (1.0)	5(1.1)
Congenital Heart Diseases	3 (2.1)	2 (0.7)	5 (1.1)
Cerebral Palsy	2 (1.4)	2 (0.7)	4 (0.9)
Limb Defects	4 (2.8)	4 (1.4)	8 (1.8)
Hearing Impairments	0	3 (1.0)	3 (0.7)
Undescended Testis	2 (1.4)	1 (0.3)	3 (0.7)
Cleft Palate	1 (0.7)	1 (0.3)	2 (0.5)
Developmental Delay (Total)	**37 (25.5)**	**3 (1.0)**	**40 (9.2)**
Disability (Total)	**76 (52.4)**	**139 (47.8)**	**215 (49.3)**
Autism	12 (8.3)	13 (4.5)	25 (5.7)
Speech Defect	60 (41.4)	74 (25.4)	134 (30.7)
ADHD	1 (0.7)	4 (0.1)	5 (1.1)
Global Delay	3 (2.1)	2 (0.7)	5 (1.1)
Mental Retardation	0	21 (7.2)	21 (4.8)
Borderline IQ	0	11 (3.8)	11 (2.5)
Learning Disorder	0	9 (3.1)	9 (2.1)
Conduct Disorder	0	2 (0.7)	2 (0.5)
Nocturnal Enuresis	0	3 (1.0)	3 (0.7)
Diseases (Total)	**65 (44.8)**	**209 (71.8)**	**274 (62.8)**
Dental	30 (20.7)	71 (24.4)	101 (23.2)
Gynaec	0	34 (11.7)	34 (7.8)
Genito –Urinary	4 (2.8)	1 (0.3)	5 (1.1)
Skin	7 (4.8)	22 (7.6)	29 (6.7)
CNS	16 (11.0)	11 (3.8)	27 (6.2)
Skeletal	0	2 (0.7)	2 (0.5)
Diabetes	0	1 (0.3)	1 (0.2)
Hypothyroidism	1 (0.7)	1 (0.3)	2 (0.5)
Respiratory	7 (4.8)	16 (5.5)	23 (5.3)
Eye	0	50 (17.2)	50 (11.5)
Deficiency (Total)	**7 (4.8)**	**12 (4.1)**	**19 (4.4)**
Vitamin Deficiency	1 (0.7)	1 (0.3)	2 (0.5)
Pallor	2 (1.4)	6 (2.1)	8 (1.8)
Under Weight	67 (46.2)	131 (45.0)	198 (45.4)
Over weight	43(29.7)	19(6.5)	62(14.2)

DISCUSSION

As infectious diseases and vaccine preventable diseases prevalence has come down in most part of the country, the emphasis now is more on prevention, early identification and early intervention for defects, delay and disabilities. However, there are still districts in India where childhood diseases and deficiency conditions are important public health problems. Hence the decision of Government of India to launch RBSK program is timely and with far reaching impact on public health. The RBSK operational guideline is a well thought out one and most appropriate for the under privileged areas in India as shown in the study in Madhya Pradesh [5]. But in a state like Kerala, where mortality and morbidity statistics are comparable to developed countries and majority of ASHA workers are well educated, there is a scope for trying out newer implementation strategies and hence the present study.

The Madhya Pradesh study conducted as per RBSK guidelines among 26977 children in a district only 2children with Down syndrome, 4 with congenital deafness, 37 with congenital heart diseases, and 3 with limb defect were identified, where as in this study, out of 3481 children screened we could identify 5 children with down syndrome, 5 with congenital heart diseases, 8 with limb defects, 4 with cerebral palsy and 3 with hearing Impairment. Similarly, the prevalence of speech delay among children below 6 years using RBSK screening tool was only 4.7% as against 13.9 % speech delay in a community study in Kerala using Language Evaluation Scale Trivandrum [6].

In the present study, out of 436 children assessed in the medical camps40 (9.2%) children were having developmental delay , 5 (1.1%) children were having ADHD,25(5.7%) children with Autism and 134 (30.7%) children having speech problems,101 (23.2%) were having dental carries, CNS problems 6.2 %,11.5 % having eye problems and 0.5 % and 0.2% having Hypothyroidism and Diabetes respectively .The Madhya Pradesh study shows among 26977 children screened, 1 child had ADHD, no one was found to have autism,39 had eye problem ,1805 had dental carries and 5 with CNS problems [5]. The results of a recent community survey carried out in one district in Kerala involving 1,01,438 children below 6 years of age, screened by trained ASHA workers using Trivandrum Developmental Screening Chart identified 2.5% screen positives. Among them 1,329 children evaluated at panchayath PHC level medical camps by experts using standardized tools showed that the delay/disabilities observed were developmental delay (49.9 %), speech & language delay (24.9%), multiple disabilities (22.9%), intellectual disability (16.85 %), cerebral palsy (8.43%), visual impairment (3.31 %) and neuromuscular disorders (1.35%) [7]. The study has the following limitations. Though this study was conducted in a single Panchayath, this study was the first effort in that Panchayat, and tries to find out whether it is possible to implement the programme in a typical grama panchayath in Kerala. So that, appropriately trained ASHA workers can be utilized for early screening and initiating early management in future. The experience of conducting this community study highlighted the importance of grama panchayath members as the most important stakeholder for successful conduct of the study and for setting up Child Development Referral Unit (CDRU) as a local referral facility.

CONCLUSION

The present study emphasis that, the trained ASHA workers could be effectively used for early screening of 4 Ds and these screened children were seen and confirmed by the experts. The study results offer an alternate cost effective mechanism to RBSK strategy for better developed districts in India. The results of the present study may initiate other researchers to find out the magnitude of birth defect, delay/disability and diseases in different parts of Kerala.

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REFERENCES

1. National Family Health Survey 4.India.2015-2016.Available at http://rchiips.org/nfhs/nfhs4.shtml.accessed on December 7, 2014.
2. World Health Organization. World Report on Disability 2011. Available from: http://www.unicef.org/protection/ World_report_on_disability_eng.pdf. Accessed December 17, 2014.
3. Ministry of Home Affairs, Government of India. Census of India, 2011. Available from: http://censusindia.gov.in/ 2011-common/censusdataonline.html. Accessed December 17, 2014. ensusindia.gov.in/Census_And_You/disabled_population.aspx
4. Operational Guidelines –Rashtriya Bal Swasthya Karyakram, Child health screening and early intervention services under NRHM by Ministry of Health and Family Welfare, Government of India .February 2013.Available at http://www.pbnrhm.org/docs/ rbsk_ guidelines.pdf. Accessed on November 2, 2014.
5. Tiwari J, Jain A, Singh Y, Soni AK. Estimation of magnitude of various health conditions under 4Ds approach under RBSK programme in Devendra nagar block of Panna District Madhya Pradesh ,India.Int J Community Med Public health .2015 Aug; 2 (3):228-233.
6. Nair MK, George B, Padma K, Potti N, Elizabeth KE, Jeyaseelan L. Developmental Evaluation Clinic--CDC experience. Indian pediatrics. 2009 Jan 2; 46.
7. Nair MC, Nair GH, Beena M, Princly P, Chandran SA, George B, Leena ML, Russell PS. CDC Kerala 16: Early Detection of Developmental Delay/Disability Among Children Below 6 y—A District Model. The Indian Journal of Pediatrics. 2014 Dec 1; 81(2):151-5.