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Impact of education intervention on prevention of iodine deficiency disorder in Dharwad Taluk, Karnataka

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ABSTRACT

Goitre has been a health concern ever since the beginning of human race and the Greeks are reputed to have used burnt sponges successfully but quite empirically in the treatment of goitre. It has been estimated that in India 200 million are living in iodine deficient areas and 71 million are suffering from goitre and other iodine deficiency disorders (IDD) (Taneja 2004). Education is one of the means to prevent IDD and promote consumption of iodised salt. In view of this the present study was undertaken in Dharwad Taluk, Karnataka with the objective to test the practice adopted by women regarding iodine deficiency disorder and to identify the impact of education intervention on their knowledge regarding IDD. The sample consisted of 240 urban and rural women of self help groups (SHGs) selected randomly. Personal information schedule was prepared and used to collect the data. The results revealed that there was good practice of usage and storage of salt. However there is no 100 per cent use of iodized salt in rural areas. It was observed that imparting nutrition education was important to promote consumption of iodized salt to prevent IDD.

Keywords: IDD; salt; goitre; practice; rural; urban; women

INTRODUCTION

Iodine is one of the trace elements that have been the subject of study for scientists as early as beginning of 18th century. The French chemist Bernard Courtois discovered it in the seaweeds in 1811. It has an atomic number of 53 and atomic weight of 126.9044. Iodine dissolves slightly in water but readily in organic solvents (Anon 1983).

In India the iodine deficiency disorders especially goitre has been known since the days of Lord Buddha and before 3000 BC (Hetzel 1991). Goitre has been a health concern ever since the beginning

of human race and the Greeks are reputed to have used burnt sponges successfully but quite empirically in the treatment of goitre. Old Chinese writings dating back over 3000-4000 years tell us about the use of sea weed and marine animal preparations to combat goiter (Lamberg 1993). The most important finding is that iodine deficiency not only results in goitre but also mental defects, deaf mutism, still birth and miscarriages, weakness and paralysis of muscles as well as lesser degree of physical and mental dysfunction (Hetzel 1987) .

Classically the most severe iodine deficient areas are those of the Himalayas, mountains of China but iodine deficiency is likely to occur in all elevated regions subject to glaciations and higher rainfall with run-off into rivers. However it also occurs in flooded river valleys of India, Bangladesh and Burma in Asia (Hetzel 1989). The at-risk population for IDD is estimated to be about 2.2 billion in the world and 200 million in India (Hetzel et al 2004). In India surveys conducted across states showed that no state is free from IDD. Sample survey conducted in 25 states and 5 union territories of the country revealed that out of 282 districts surveyed so far IDD is a major public health problem in 241 districts where the prevalence is more than 10 per cent. It has been estimated that in India 200 million are living in iodine deficient areas and 71 million are suffering from goitre and other IDD (Taneja 2004).

Education is one of the means to prevent IDD and promote consumption of iodized salt. In view of this the present study was undertaken in Dharwad Taluk, Karnataka with the objective to test the practice adopted by women regarding iodine deficiency disorder and to identify the impact of education intervention on their knowledge regarding IDD.

METHODOLOGY

The sample size was fixed to 240 from both rural and urban areas in Dharwad Taluk. Equal number (n=120) of women were selected from rural and urban areas. The women were randomly selected from the self-help groups and Mahila Mandals. Four villages were selected randomly from Dharwad Taluk viz Uppinbetageri, Hebballi, Harobelawadi and Narendra and 30 women from one SHG in each village were selected for the study. In urban areas Radhakrishnanagar Jayanagar, Gandhinagar and Maratha colony were selected for the study.

Data were collected wrt demographic characteristics of the test women and the practices they adopt against IDD and consumption pattern of salt. The mean score obtained of the respondents was recorded. The respondents were categorized into low, medium and high practice score categories based on mean ±SD.

RESULTS AND DISSCUSSION

Demographic characteristics of subjects selected are presented in Table 1. Among them nearly half belonged to the age group of 31-50 years (44.58%) followed by 18-30 years (41.68%) and above 50 years (13.75%). Most of the rural women belonged to 18-30 years age group (55.84%) followed by 31-50 years (38.33%) and rest to above 50 years (5.83%) age group whereas in urban areas maximum subjects belonged to 31-50 years age group (50.83%) followed by 18-30 years (27.50%) and rest to above 50 years age group (21.67%).

Among all the subjects 27.92 per cent had education up to high school level followed by graduation (17.08%). Among the rural subjects 28.33 per cent were matriculates followed by illiterates (27.50%). Only 4.12 per cent were graduates in rural areas. On the contrary in urban areas majority (30%) subjects were graduates and 27.50 per cent were matriculates. Only 5 per cent were illiterate in the urban areas.

It was observed that more than three fourth of subjects were housewives (77.50%) followed by gainfully employed (13.75%). In rural area 63.33 per cent of the subjects were housewives followed by 19.17 per cent who were gainfully employed, about 10.83 per cent of them were agricultural laborers and 6.67 per cent were practicing agriculture. Similarly in urban areas maximum number of subjects (91.67%) was housewives followed by gainfully employed (8.33%).

More than half of the subjects belonged to nuclear families (67.08%) followed by joint families (32.92%). Among rural women 55.83 per cent belonged to nuclear families and 44.17 per cent to joint families. However among urban families 78.33 and 21.67 per cent belonged to nuclear and joint families respectively.

Majority of the subjects had small (45.42%) family size followed by medium (40.00%) and large (14.58%) family size. Among the rural subjects more than half (53.33%) belonged to medium size families followed by 27.50 per cent to small and 19.17 per cent to large families. In urban areas maximum (63.33%) belonged to small families size followed by medium (26.67%) and large (10.00%) families.

Most of the respondents had monthly income of ₹5,000-9,999 (31.25%) followed by ₹10,000-19,999 (21.25%), ₹ 20,000-49,999 (20.83%) and ₹ 2,500-4,999 (12.92 %) and very few > ₹ 50,000 (2.92%). It was observed that in rural areas maximum subjects had a family income of ₹5,000-9,999 (35%), followed by ₹ 2,500-4,999 (20%), ₹ 10,000 – 19,999 (19.17%) and 1,000 – 2,499 (14.17%). Only 1.66 per cent families had an income of > ₹ 50,000. In

Table 1. Demographic characteristics of the respondents

Variable	Rural (n = 120)		Urban (n = 120)		Total (N = 240)	
	Frequency	%	Frequency	%	Frequency	%
Age (yrs)						
18-30	67	55.84	33	27.50	100	41.68
31-50	46	38.33	61	50.83	107	44.58
>50	7	5.83	26	21.67	33	13.75
Education						
Illiterate	33	27.50	6	5.00	39	16.25
Primary (1-4 std)	8	6.67	6	5.00	14	5.83
Middle (5-7 std)	23	19.17	16	13.33	39	16.25
High (8-10 std)	34	28.33	33	27.50	67	27.92
PUC	17	14.12	23	19.12	40	16.67
Graduation	5	4.12	36	30.05	41	17.08
Occupation						
Housewife	76	63.33	110	91.67	186	77.50
Employed gainfully*	23	19.17	10	8.33	3	13.75
Agriculture	8	6.67	-	-	8	3.33
Agricultural labour	13	10.83	-	-	13	5.42
Type of family						
Nuclear	67	55.83	94	78.33	161	67.08
Joint	53	44.17	26	21.67	79	32.92
Family size (no of members)						
Small (up to 4)	33	27.50	76	63.33	109	45.42
Medium (5-7)	64	53.33	32	26.67	96	40.00
Large (>7)	23	19.17	12	10.00	35	14.58
Income per month (₹)						
>50,000	2	1.66	5	4.17	7	2.92
20,000 -49,999	4	3.33	46	38.34	50	20.83
10,000 -19,999	23	19.17	28	27.33	51	21.25
5,000 -9,999	42	35.00	33	.50	75	31.25
2,500- 4,999	24	20.00	7	5.83	31	12.92
1,000-2,499	17	14.17	1	0.83	18	7.50
<1,000	8	6.67	-	-	8	3.33

*ASHA worker, tailor, computer operator, teacher, attendant

Table 2. Categorization of rural and urban women based on practice score of salt

Area	Locality	Low	Medium	High
Rural	Narendra	12 (40.00)	6 (20.00)	12 (40.00)
	Harobelawadi	15 (50.00)	4 (13.30)	11 (36.70)
	Uppinbetageri	11 (36.70)	19 (63.30)	-
	Hebballi	14 (46.70)	7 (23.30)	9 (30.00)
	Total	52 (43.30)	36 (30.00)	32 (26.70)
Urban	Gandhinagar	1 (3.30)	16 (53.40)	13 (43.30)
	Maratha Colony	1 (3.30)	16 (53.40)	13 (43.30)
	Radhakrishnanagar	1 (3.30)	14 (46.70)	15 (50.00)
	Jayanagar	-	17 (56.70)	13 (43.30)
	Total	3 (2.50)	63 (52.50)	54 (45.00)
	Grand total	55 (22.90)	99 (41.20)	86 (35.80)

Figures in the parentheses indicate percentage

Table 3. Correlation coefficient of practice score with independent variables

Variable	Practice score	
	Rural (n=120)	Urban (n=120)
Age	0.209*	0.203*
Education	0.182*	0.087*
Type of family	0.007	-0.161
Family size	0.120	-0.135
Family income	0.211*	-0.067
Extension participation	0.162	0.401**
Social participation	0.059	-0.049
Exposure to mass media	0.094	0.069

*Significant at 5% level

**Significant at 1% level

urban areas it was observed that 38.34 per cent families had an income of ₹ 20,000-49,999, followed by 27.50 per cent ₹ 5,000-9,999 and 27.33 per cent ₹ 10,000 – 19,999. Only 4.17 per cent families in urban areas had income > ₹50,000.

The practice score of salt among rural and urban women is shown in Fig 1. The mean practice score among urban women (9.40) was significantly higher ($p<0.01$) compared to rural women (8.27) 't' value being 7.57.

The categorization of rural and urban women based on practice score of salt is presented in Table 2. Majority of women (41.20%) were in medium practice score category followed by high (35.80%) and low category (22.90%). Among the rural women higher percentage was in low (43.30) practice score category followed by medium (30.00) and high (26.70) score category. On the contrary higher percentage of urban women were in medium (52.50) practice score category followed by high (45.00) and low category (2.50).

The correlation of practice score with independent variables is shown in Table 3. Age, education, family income and extension participation were significantly correlated with practice score among women. Among the rural women age, education and family income were positively correlated ($r < 0.05$). Among the urban women age was positively correlated ($r <0.05$) whereas extension participation was positively and highly correlated ($r <0.01$).

Fig 2 depicts the impact of education intervention on practice score of rural and urban women. The mean practice score before education was 8.20 it increased to 9.36 with education and this increase was significant ($p<0.01$).

The mean practice score among urban women before education was 9.40 and it increased to 9.90 after education and the difference was significant ($p<0.01$).

Similar results were obtained by Renuka and Saraswathi (2006) who revealed that after imparting nutrition education the experimental group showed significant improvement in general sports and overall nutrition practice at Dharwad city.

CONCLUSION

The results of the present study revealed that practice regarding IDD and salt were not up to satisfactory level. Though there was good practice of usage and storage of salt there was not 100 per cent use of iodized salt in rural areas. So imparting nutrition education on promotion of using iodized salt, food sources of iodine and harmful effects of goitrogenic foods is recommended. Though the study areas did fall under non-goitre belt yet because of soil erosion, floods, malnutrition condition etc