TABLE I IODINE STATUS OF THE STUDY POPULATION ON THE BASIS OF UIE (WHO CRITERIA) (*N*=292) ACCORDING TO STUDY AREAS AND GENDER

Study/Area		*Severe ID (<20 µg/L)*	*Moderate ID (20-49 µg/L)*	*Mild ID (50-99 µg/L)*	*Adequate (100-199 µg/L)*	*More than adequate (200-299 µg/L)*	*Excessive Iodine (>300 µg/L)*
**Areas*	Shree Antu (*n*=108)	12 (11.1%)	8 (7.4%)	12 (11.1%)	16 (14.8%)	20 (18.5%)	40 (37.0%)
	Ranke (*n*=184)	18 (9.8%)	17 (9.2%)	31(16.8%)	44 (23.9%)	44 (23.9%)	30 (16.3%)
#*Gender*	Male (*n*=168)	16 (9.5%)	8 (4.8%)	24 (14.3%)	34 (20.2%)	40 (23.8%)	46 (27.4%)
	Female (*n*=124)	14 (11.3%)	17 (13.7%)	19 (15.3%)	26 (21.0%)	24 (19.4%)	24 (19.4%)
Total		30 (10.3%)	25 (8.6%)	43 (14.7%)	60 (20.5%)	64 (21.9%)	70 (24.0%)

*ID = Iodine deficiency; *P=0.003; #=0.09.*

hilly areas and there is no sustainable improvement in median UIE. Even though the population has adequate median UIE, 33.6% school children had UIE<100 µg/L. This finding is similar to those shown by the report of Nepal Micronutrient Status Survey in 1998, which had shown 35.1% of school children iodine deficient. A previous study [6] showed that 18.5% children were iodine-deficient in hilly regions of Nepal. As iodine deficiency is the most common cause of preventable brain damage in children, it should be virtually eliminated from every part of the country [2]. Our study suggests that children living in high altitude of hilly regions at the time of study had adequate iodine nutrition.

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REFERENCES

1. National Survey and Impact study for Iodine Deficiency Disorders (IDD) and availability of iodized salt in Nepal. Kathmandu, Nepal: Ministry of Health and Population, Department of Health Services, Government of Nepal, Government of India and Alliance Nepal, 2007.
2. Pandav CS, Yadav K, Srivastava R, Pandav R, Karmarkar MG. Iodine deficiency disorders (IDD) control in India. Indian J Med Res. 2013;138:418-33.
3. Ohashi T, Yamaki M, Pandav CS, Karmarkar MG, Irie M. Simple microplate method for determination of urinary iodine. Clin Chem. 2000;46:529-36.
4. Zimmermann MB, Jooste PL, Pandav CS. Iodine-deficiency disorders. Lancet. 2008;372(9645):1251-62.
5. Nepal AK, Khatiwada S, Shakya PR, Gelal B, Lamsal M, Brodie D, *et al*. Iodine status after iodized salt supplementation in school children of eastern Nepal. Southeast Asian J Trop Med Public Health. 2013;44:1072-8.
6. Gelal B, Aryal M, Das BKL, Bhatta B, Lamsal M, Baral N. Assessment of iodine nutrition status among school age children of Nepal by urinary iodine assay. Southeast Asian J Trop Med Public Health. 2009;40:538-43.

Performance Appraisal of *Anganwadi* Workers

Integrated child development scheme (ICDS) was launched in 1975 in India [1]. The ICDS services, which include supplementary nutrition, preschool education, immunization, health check-ups, health education and referral services, are delivered by *Anganwadi* worker. In view of the increased burden on them, the performance of *Anganwadi* worker has been under scrutiny. We conducted this cross-sectional exploratory study to assess the performance of *Anganwadi* workers in selected *Anganwadi* centers of a North Indian city. Permission from Social Welfare Department and ethical approval from Institute Ethical Committee were obtained.

Fourteen *Anganwadi* workers and 100 ICDS beneficiaries were chosen as a sample of convenience. Tools used for data collection were performance appraisal checklist to appraise the performance of *Anganwadi* workers, and interview schedule to assess the satisfaction level of ICDS beneficiaries. Observation and interview were the techniques used for data collection. A total of 24 observations were made from selected *Anganwadi*

TABLE I PERFORMANCE OF *ANGANWADI* WORKERS IN DIFFERENT ACTIVITIES OF ICDS (*N*= 14)

Activity	*Poor*	*Average*	*Good*
Rapport building	-	-	14
Area mapping	14	-	-
Supplementary nutrition	-	13	1
Growth monitoring	-	7	07
Referral services*	-	-	-
Immunization	01	1	12
Health and nutrition education	03	4	07
Treatment of minor illness*	-	-	-
Preschool education	02	7	05
Services for adolescent girls	03	3	08
Services for pregnant mothers	05	8	01
Services for postnatal mothers**	04	2	-
Record maintenance	-	-	14
Home visit	10	-	04

**No case reported during the study period; **only 6 Anganwadi centers were having postnatal mothers in the respective area.*

TABLE II SATISFACTION LEVEL OF BENEFICIARIES WITH SERVICES PROVIDED BY *ANGANWADI* WORKERS (*N*= 100)

ICDS services	*Level of satisfaction*		
	Dissatisfied	*Uncertain*	*Satisfied*
General aspects*	5	4	91
Supplementary nutrition	7	10	83
Preschool education	5	2	93
Health education	26	10	64
Immunization	9	4	87
Health check up	19	13	69
Referral services	-	-	100
SABLA	6	-	94
Average	10	05	85

**General aspects of services include behavior, rapport, punctuality, efficiency of Anganwadi worker.*

centers. Beneficiaries were interviewed in their houses. The collected data were analyzed using SPSS 16.0.

Performance of the *Anganwadi* workers is presented in ***Table* I**. They were good in rapport building and record maintenance. All the *Anganwadi* workers performed poorly in area mapping, and ten of them were poor in home visits. Majority (85) of beneficiaries were satisfied with the services provided by *Anganwadi* workers. Satisfaction level was highest with referral services, preschool education and services for adolescents **(*Table* II)**.

The performance of *Anganwadi* workers was rated as poor only in two of the activities: home visiting and area mapping. This might be due to lack of time available with the workers as more time was spent in other activities. In Maharashtra, the maximum monthly time spent by *Anganwadi* workers was for preschool education (48 hours), followed by record keeping (30 hours) and home visits (29.7 hours) [2]. About half of AWWs were rated as good in growth monitoring but half of them performed average. Earlier study from Punjab also showed that Anganwadi workers' performance was poor in weighing [2]. Another study conducted in Maharashtra showed that majority of beneficiaries were fairly satisfied with the services provided by *Anganwadi* workers [3].

The performance of *Anganwadi* workers in field-based activities should be emphasized, and in-service education activities should be planned to improve their performance in deficient areas.

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REFERENCES

1. National Institute of Public Cooperation and Child Development. Handbook for *Anganwadi* workers; 2006. Available from: *http://nipccd.nic.in/syllabi/eaw.pdf*. Accessed February 10, 2015.
2. National Institute of Public Cooperation and Child Development. Research on ICDS An Overview Volume 2; 2009. Available from: *http://nipccd.nic.in/reports/icdsvol2.pdf*. Accessed February 11, 2015.
3. Gulabrao JA. A sociological study of *Anganwadi*s in Sangli city of Maharashtra state 2013. Available from: *http://shodhganga.inflibnet.ac.in:8080/jspui/bitstream/10603/8595/6/15%20topic%207.pdf*. Accessed February 10, 2015.