

CHAPTER V

ANALYSIS

This chapter deals with the summarization and analysis of the data to answer the primary and secondary research questions. The outcome measure were described in detail in chapter 6.

5.1 Summarization of the data

The outcome of study --The primary outcome of this study was measured in terms of level of difference of competence between the hill and the terai auxiliary nurse midwives. The 1st secondary outcome of this study was measured in terms of level of difference of knowledge score about antenatal care between the hill and the terai ANMs.

Descriptive statistic percentage, mean and SEM were used to determine the characteristics of each set of data including tabulation and computation of proportions, mean, SEM as appropriate.

In this study, there were two independent groups. Competence was summarized in proportion, and computed for mean SEM of percentages for all items. Knowledge were summarized in mean. Therefore in this

study the mean percentage and 60% equal and above criteria between groups were analysed by chi-square to determine the significance of difference of competence among hill and terai ANMs. Knowledge level equal and above 50% criteria were analysed by unpaired t-test to determine the significance of difference of antenatal care knowledge level between the hill and the terai auxiliary nurse midwives.

5.2 The Statistical Analysis of Associated Factors:

The statistical test was required to provide the answer to the second secondary research question: ie to identify the strength of association of independent variables to dependent variable in both the hill and the terai ANMs. In this study, the dependent variable was summarized in proportion and there were more than two independent variables. Dependent variable was in a dichotomous outcome (i.e. equal and above 60% competent and below 60% not competent) and the independent variables were both dichotomous and continuous data.

Whenever the period of observation is equal for all study subjects and the outcome of interest is a binary figure, multiple logistic regression is a powerful statistical tool for the estimation of odds

ratio adjusted for confounding variables. The logistic model for the probability of outcome yields values that are always zero and one. The regression coefficient obtained through the logistic regression indicate the effect of an individual variables on the log odds of the outcome event with all the remaining variables held constant. The coefficient denotes the magnitude of the increase or decrease of the regressor variables. As in logistic regression, the coefficient are selected in such a way that the prediction equation obtained is maximally descriptive of the direction and magnitude of the relationship of the predictor variables to the dependent variable in the data being analyzed (David 1986, Jennifer L Kelsay et al 1986).

Therefore in this study multiple logistic regression was used to predict the strength of association of independent variables to the dependent variable.

5.3 Criteria for interpretation:

I ANMs competence level ---

The standard level of competence of graduates ANMs were divided into 2 levels:

Less than 60 %.

Equal and more then 60 %.

The score of competence level below 60 %, indicated incompetence i.e need for refresher training course.

II ANMs knowledge level --

Less than 50 %

Equal and more then 50 %

The score of knowledge level below 50 % indicate need for refresher training.

The concept behind the assumption of equal or more than 60 % as satisfactory level of competence is that the ANMs had to perform at least 10 % above average of passing clinical marks in institute final examination, when they were students. They also had to score 50 % in clinical area and 40 % in theoretical knowledge in order to graduate.

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CHAPTER VI

ETHICAL CONSIDERATIONS

Ethical issues must be considered in any kind of research dealing with human being. Every human being has equal right for moral value. Ethics refer to the study and evaluation of human conduct. Researchers must think of risk and benefit of the subject. Subject must be free to decide whether to take part in the study. But in this study, consent was not taken because there was no intervention. Subjects were kept blind to prevent Hawthorn effect. There was no risk for the subjects.

The main concern of this study was to identify whether these ANMs were performing their job according to standard job description or not and to find out the deficiencies in the delivery of the antenatal care. The result of this study was to do more good than harm for subjects, community and the country. In areas identified weaknesses or deficiencies or lack of competence, recommendations were used to initiate counselling, guidance and refresher training course to subjects as necessary.

Secrecy and anonymity was fully guarded. In this study, the name of the subject was not recorded. Only the serial number was coded. Information obtained will be published for technical purpose without naming the subjects.



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CHAPTER VII

RESULT

The study involved 165 ANMS who worked both in the terai and the hill antenatal care, MCH service in health posts and district health offices of Eastern Development Region of Nepal. Randomly selected districts in the terai were Jhapa, Morong, Saptari and selected districts in the hill were Bhojpur, Dhankuta and Ilam. The total number of ANMS in the terai were 90 but only 85 subjects were accessible. Of the 5 ANMS who were not accessible, 3 of them went to study staff nurse, one worked in a hospital and one was on leave. The total number of ANMS in the hill were 86 but only 80 subjects were accessible. Of the 6 ANMS who were not accessible, 2 went to study staff nurse, 2 were working in another district and 2 were working in zonal hospitals. Up to 165 nurses remained for the study: 85 in the terai and 80 in the hill.

TABLE 1
NO. AND PERCENTAGE OF INDEPENDENT VARIABLE OF BOTH
TERAI AND HILL ANMS.

VARIABLE	TERAI N=85		HILL N=80		TOTAL
	NO	%	NO	%	
AGE IN YEARS					
15 - 25	6	(7.1%)	10	(12.5)	16
26 - 35	63	(74.1)	51	(63.8)	114
36 - 45	16	(18.8)	16	(20.0)	32
ABOVE 46	-	-	3	(3.8)	3
AVERAGE					
	32.024		32.100		
SEM					
	+.530		+.730		
DURATION OF WORK IN YEARS					
1 - 5	8	(9.4)	16	(20.0)	24
6 - 10	26	(30.6)	21	(26.3)	47
11 -15	34	(40.0)	31	(38.8)	65
16 above	17	(20.0)	12	(15.0)	29

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NO. AND PERCENTAGE OF INDEPENDENT VARIABLE OF BOTH
TERAI AND HILL ANM. CONTINUATION

VARIABLE	TERAI NO (%)	HILL NO (%)	TOTAL
MARITAL STATUS			
MARRIED	72 (84.7)	54 (67.5)	126
SINGLE	11 (12.9)	23 (28.8)	34
WIDOW	2 (2.4)	3 (3.8)	5
TOTAL	85 (100)	80 (100)	165
REFRESHER COURSE			
NOT RECEIVED	66 (77.6)	75 (93.8)	138
RECEIVED	19 (22.4)	5 (6.3)	24
TOTAL	85 (100)	80 (100)	165
SUPERVISION			
NOT RECEIVED	67 (78.8)	71 (88.7)	138
RECEIVED	18 (21.2)	9 (11.3)	27
TOTAL	85 (100)	80 (100)	165

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NO. AND PERCENTAGE OF INDEPENDENT VARIABLE OF BOTH
TERAI AND HILL ANMS. CONTINUATION

VARIABLE	TERAI NO (%)	HILL NO (%)	TOTAL
WORK LOAD			
BELOW 21 CASE/DAY	68 (80.0)	79 (98.8)	147
41 -60 CASE/DAY	16 (18.8)	- -	16
61 ABOVE	1 (1.2)	1 (1.2)	2
TOTAL	85 (100)	80 (100)	165

The independent variables were summarized in percentage, mean and SEM. The average age of terai ANMs was $32.024 \pm .530$. The majority (74.1%) of them were between the age of 26 - 35 years and only 7.1% of them were between age 15 - 25 years (see table 1). The average age of the hill ANMs was $32.100 \pm .730$ (see table 1), the majority (63.8%) were between age 26 - 35 years. Only 12.5% of them were of age 15 - 25 years, 3.8% were above 46 years of age and none of the ANMs in the older age group was in the hill. Up to 40% of the terai ANMs had experience of 11 to 15 years and only 9.4% had 1 to 5 years of experience. Similarly 38.8% of hill ANMs had 11 to 15 years of experience while only 20.0% had 1 to 5 years of

experience. In the hill ANMs, as many as 15% had more than 16 years of experience. The average years of experience of the terai and the hill ANMs were 11.800 \pm .544, and 10.750 \pm .594 respectively. With regard to marital status 84.7% of the terai ANMs were married and only 2.4% were widow whereas 67.5% of the hill ANMs were married and 3.8% were widow.

Regarding refresher course, 77.6% of the terai ANMs did not receive any refresher training course whereas 93.8% of the hill ANMs did not receive any refresher course (see table 1). Regarding supervision, 78.8% of the terai ANMs did not receive any supervision whereas 88.7% of the hill ANMs did not receive any supervision. The result about work load showed that 80% of the terai ANMs had took care of less than 20 cases/day while 90% of hill ANMs took care of less than 20 cases/day.

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TABLE 2
SIGNIFICANCE RESULT FROM CHI SQUARE STATISTICS IN
EACH ANC COMPETENCE AREA BETWEEN TERAI AND HILL
ANMs.

ANC COMPETENCE AREA	% of competence		X ²	P-VALUE < 0.05
	Terai N=85	Hill N=80		
PHYSICAL EXAMINATION				
Explain procedure to the patient.	68.2	83.8	5.40	.022
Maintain privacy to the patient.	20.0	15	6.74	.009
Ask patient to loose the outfit.	84.7	72.5	3.67	.055
Does not expose unnecessarily.	56.5	76.2	7.19	.007
Inspect fetal head & palpate feetal skull	31.8	20.0	41.67	.000
Inspect tongue and finger nail for anemia	78.8	28.8	24.20	.000
Inspect vulva for vericose vein, swelling and abnormal discharge	84.7	48.8	16.93	.000

SIGNIFICANCE RESULT FROM CHI SQUARE STATISTICS IN EACH
ANC COMPETENCE AREA BETWEEN TERAJ AND HILL ANMS.
CONTINUATION

ANC COMPETENCE AREA	% of competence		X ²	P-VALUE < 0.05
	Terai N=85	Hill N=80		
Abdominal examination				
Do lateral palpation.	43.5	27.5	4.60	.031
Able to explain fetal presentation and position to the patient.	67.1	40.0	12.14	.000
Listen foetal heart sound in correct position.	69.4	52.5	4.96	.025
Differentiate normal & abnormal finding.	48.2	66.2	5.45	.01
Record all finding.	41.2	61.3	6.64	.019
Take maternal weight.	31.8	46.3	3.64	.056
History taking Past obstetrical history.				
Gravida/Para	98.8	90.0	6.22	.012
Abortion/miscarriage	50.6	16.2	21.67	.000
Live birth number	83.8	74.1	4.69	.030

SIGNIFICANCE RESULT FROM CHI SQUARE STATISTICS IN EACH
 ANC COMPETENCE AREA BETWEEN TERAJ AND HILL ANMS.
 CONTINUATION

ANC COMPETENCE AREA	% of competence		X ²	P-VALUE < 0.05
	Terai N=85	Hill N=80		
CURRENT PREGNANCY				
Constipation	71.3	38.8	17.47	.000
Vaginal bleeding	77.6	51.2	12.59	.000
Abdominal pain	50.6	35	4.08	.043
PAST MEDICAL HISTORY				
Heart disease	29.4	13.8	5.92	.014
Hypertension	21.2	5.0	9.33	.002
Diabetes	25.9	7.5	9.88	.001
Kidney, bladder disease	37.6	18.7	7.22	.007
FAMILY HISTORY				
Diabetes	23.5	7.5	7.97	.004
Hypertension	22.4	7.5	7.07	.007
Twins, abnormalities	49.4	30.0	6.47	.011

SIGNIFICANCE RESULT FROM CHI SQUARE STATISTICS IN EACH
ANC COMPETENCE AREA BETWEEN TERAJ AND HILL ANMS.
CONTINUATION

ANC COMPETENCE AREA	% of competence		X ²	P-VALUE < 0.05
	Terai N=85	Hill N=80		
PERSONAL HABIT				
Smoking	40.0	63.8	9.30	.002
Alcohol	24.7	53.8	14.64	.000
HISTORY OF PREVIOUS				
PREGNANCY				
COMPLICATION DURING				
PREGNANCY				
Vaginal bleeding	68.2	46.3	8.15	.004
Delivery	72.5	68.2	7.97	.004
Breast or artificial feeding	12.9	25.0	3.92	.047

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SIGNIFICANCE RESULT FROM CHI SQUARE STATISTICS IN EACH
 ANC COMPETENCE AREA BETWEEN TERAJ AND HILL ANM.
 CONTINUATION

ANC COMPETENCE AREA	% of competence		X ²	P-VALUE < 0.05
	Terai N=85	Hill N=80		
BLOOD PRESSURE MEASUREMENT				
Explain procedure to the patient.	82.5	56.5	13.0	.000
Rolls up sleeve of patient garment.	94.1	81.3	6.40	.011
Centres cuff bladder over brachial artery.	96.5	63.8	28.22	.000
Positions and support arm at heart level.	90.6	67.5	13.42	.000
Repositions arm at heart level.	96.5	65.0	26.75	.000
PATIENT EDUCATION				
Establish rapport with patient.	64.4	87.5	13.73	.000
Clarity of language.	81.2	52.5	15.39	.000

SIGNIFICANCE RESULT FROM CHI SQUARE STATISTICS IN EACH
 ANC COMPETENCE AREA BETWEEN TERAJ AND HILL ANMs.
 CONTINUATION

ANC COMPETENCE AREA	% of competence		X ²	P-VALUE < 0.05
	Terai N=85	Hill N=80		
T-T INJECTION				
Assemble sterile needle and syringe.	86.3	68.2	7.54	.006
Explain action to the patient.	63.5	77.5	3.85	.006
Anticipate patients embarrassment protect privacy.	44.7	66.2	7.72	.005
Insert sterile needle at an angle of 90 degree for IM injection.	69.4	33.8	21.00	.000
Withdraw plunger if blood appears.	62.4	40.0	8.24	.004
Ascertain patient's comfort.	63.5	57.5	9.18	.002
COMMUNICATION SKILL				
Pay attention to both comfort and privacy of patient.	88.2	67.5	10.38	.001
Relax and has a pleasant appearance during the session.	81.2	88.8	4.31	.037

TABLE 3

NO. AND PERCENTAGE OF BOTH TERAJ AND HILL ANMS WHO GOT EQUAL OR ABOVE 60% OF COMPETENCE IN ANC.

ANMS GROUP	BELOW 60% N (%)	EQUAL & ABOVE 60% N (%)	P_VALUE < 0.05
TERAJ ANMS N=85	21 (24.7%)	64 (75.2%)	0.000 *
HILL ANMS N=80	50 (62.5%)	30 (37.5%)	

*Test of statistical significance from χ^2 .

TABLE 4

OVERALL MEAN PERCENTAGE OF COMPETENCE OF TOTAL OF 108 COMPETENCE ITEMS OF BOTH TERAJ AND HILL ANMS IN ANC.

ANMS GROUP	MEAN PERCENTAGE OF COMPETENCE	SEM	P-VALUE < 0.05
TERAJ ANMS N=85	62.22	1.236	.022 *
HILL ANMS N=80	58.41	1.086	

*Test of significance from t-test statistic.

TABLE 5

NO. AND PERCENTAGE OF BOTH TERAI AND HILL ANMs WHO HAS
EQUAL & ABOVE 60% IN EACH ANC COMPETENCE AREA AND P-VALUE.

ANC COMPETENCE AREA	TERAI N=85		HILL N=80		P-Value <0.05
	NO	(%)	NO	(%)	
Physical examination	52	(61.1)	30	(37.5)	0.003
Abdominal examination	24	(28.2)	8	(10)	0.005
History taking	10	(11.7)	7	(8.7)	0.703
Blood pressure	83	(97.6)	46	(57.5)	0.000
patient education	2	(2.3)	-		F.Ex 2tail 0.497
Tetanus toxoid injection skill	44	(51.7)	39	(48.7)	0.880
communication skill	52	(61.1)	53	(66.2)	0.606

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TABLE 6

MEAN PERCENTAGE OF BOTH TERAI AND HILL ANMS IN EACH
ANC COMPETENCE AREA AND P-VALUE.

ANC COMPETENCE AREA	TOTAL Score	TERAI N=85		HILL N=80		P-VALUE < 0.05
		Mean	SEM	Mean	SEM	
Physical examination	13	8.83	±.226	7.91	±.263	.008
Abdominal examination	11	5.97	±.245	4.66	±.257	.000
History taking	39	18.28	±.733	17.96	±.160	.738
Blood pressure	10	8.98	±.134	8.17	±.190	.001
Patient education	9	3.60	±.193	3.45	±.203	.593
Tetanus toxoid injection skill	14	9.82	±.255	9.36	±.268	.214
communication skill	11	6.71	±.207	6.88	±.209	.580

PHYSICAL EXAMINATION -- Chi square statistical method showed that out of 13 subitems of physical examination, 7 were significantly different between the terai and the hill ANMS. The result from table 5 showed that 61.1% of the terai ANMS were competent equal and above 60% in physical examination while only 37.5% of hill ANMS were equal and above 60%

competency. These above result showed that the terai ANMs looked better than the hill ANMs in physical examination.

ABDOMINAL EXAMINATION -- Out of 11 sub items in abdominal examination, seven items were highly significantly different (see table 2). In this field, the terai ANMs looked better (see table 5). Comparison of mean percentages of abdominal examination of the terai ANMs with the hill ANMs showed highly significant difference (see table 6).

HISTORY TAKING -- Out of 39 sub items, in history taking, 18 items were significantly different (see table 2). In this field both groups of ANMs had least competence (see table 6).

PATIENT EDUCATION --- Comparing to other field, the chi square of significance difference in this ANC area was very small. Out of 9 sub items only two items were significantly different (see table 2). Considering competence of both group, they were very badly deficient in this area of competence (see table 5 6).

TETANUS TOXOID INJECTION SKILL ---- Out of 14 sub items in this area, only 6 items were significantly different between the terai and the hill ANMs. The

overall mean % and number of competent ANMs in this area were similar in both groups (see table 6).

COMMUNICATION AND INTERVIEW SKILL ----- Out of 11 subitems only 2 subitems were significantly different in this competence area (see table 1). The mean percentage score in this item showed similarity between both groups (see table 6). The number of competence among ANMs looked similar in both groups but the hill ANMs obtained a little higher competence in these items than the terai ANMs (see table 5).

Overall competence:--In comparison, the overall mean percentage score of total ANC competence item showed highly significant difference with the terai higher than the hill ANMs (see table 4). The number and percentage of the terai ANMs who got equal and above 60% of competence were likewise higher than the hill ANMs (see table 3).

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TABLE 7

Result of multiple logistic regression analysis to predict the strength of association of independent variable to dependent variable.

Predictors of competence outcome:

Dependent variable: % of competence

Total population =165

Total number of competence ANMs =97

VARIABLE	COEFFICIENT	SE	Z	P-VALUE
AGE IN YEARS (0=<30,1=>31)	.0322882	.045119	.72	.471
DURATION OF WORK (0=<10,1=>11)	-.0758970	.053886	-1.41	.158
WORK LOAD (0=<20,1=>21)	-1.1880823	.592787	-2.00	.045
SUPERVISION RECEIVED (0=no,1=yes)	2.3681801	.784027	3.02	.003
REFRESHER COURSE RECEIVED (0=NO,1=YES)	-.0304727	.577599	-.05	.960
ANMS GROUP (0=HILL,1=TERAI)	1.7203506	.416355	4.13	.002
MARITAL STATUS (0=MARRIED,1=SINGLE,WIDOW)	-.4878291	.438085	-1.11	.267
CONSTANT	-.6487962	1.142265	-.57	.431

TABLE 8

Dependent variable: % of competence

Total population =165

Total number of competence ANMS =97

VARIABLE	Z	ODDS RATIO	95% C.I.
AGE IN YEARS (0=<30,1=>31)	.72	1.0326	.9454-1.1283
DURATION OF WORK (0=<10,1=>11).	-1.41	.9269	.8340-1.0302
WORK LOAD (0=<20,1=>21)	-2.00	.3048	.0954-.9741
SUPERVISION RECEIVED (0=no,1=yes).	3.02	10.6779	2.2968-49.6423
REFERENCE COURSE RECEIVED (0=NO,1=YES)	-.05	.9700	.3127-3.0090
ANMS GROUP (0=HILL,1=TERAI)	4.13	5.5865	2.4702-12.6340
MARITAL STATUS (0=MARRIED,1=SINGLE,WIDOW)	-1.11	.610	.2602-1.4489
CONSTANT	-.57		

Multivariate analysis was used to explore the relationship between associated factors (individual variables). The best method to analyse this relationship was the "logistic regression" because in this study the dependent or criterion variable was a dichotomous outcome and independent or predictor variables were both dichotomous and continuous data. Seven predictor variables were included in the model.

Both criterion and predictor variables were recategorized to dichotomous variable e.g. less than 60%/equal and more than 60% of competence before fitting into the logistic model. Software logistic regression ("logress") was employed in this study.

This software allows us to find out the coefficient of independent variable, the standard error, the z test, an odds ratio and the 95% confidence interval.

The result of multiple logistic regression showed that work load, supervision received and ANMS groups (terai vs. hill) were significant predictor of competence. The result of odds ratio and 95% confidence interval indicated the factor associated with the ANC competence of ANMS were work load, supervision received and ANMS groups. ANMS who had work load more than 21 case /day had odds of competence only 30%, if the ANMS whose work load was 20 or less cases /day had 100% competence. ANMS who received supervision had odds of competence 10 times more than those who do not receive supervision. The terai ANMS had odds of competence 5 times more than the hill ANMS.

TABLE 9

TEST OF DIFFERENCE IN ANC COMPETENCE (7 SUBGROUPS COMBINED) ITEMS BY AGE GROUP =15-25, 26-35, 36-45 AND 46 AND OVER.

SOURCES OF VARIATION	DF	SUM OF SQUARE	MEAN SQUARE	F RATIO	F PROBA.
BETWEEN GROUP	3	122.9254	40.9751	.3501	.7892
WITHIN GROUP	161	18845.77	117.0545		
TOTAL	164	18968.703			

TABLE 10

TEST OF DIFFERENCE IN ANC COMPETENCE (7 SUBGROUPS COMBINED) ITEMS BY DURATION OF WORK =1-5, 6-10, 11-15 AND 16 AND OVER.

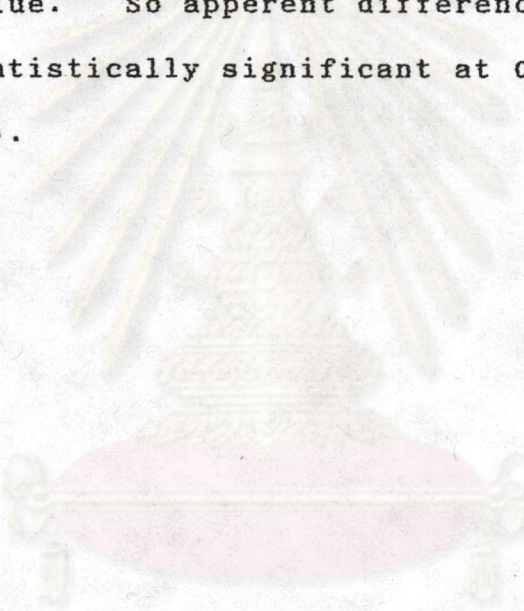
SOURCES OF VARIATION	DF	SUM OF SQUARE	MEAN SQUARE	F RATIO	F PROBAB.
BETWEEN GROUP	3	419.7820	139.9273	1.2145	.3063
WITHIN GROUP	161	18548.9211	115.2107		
TOTAL	164	18968.7030			

One way ANOVA was used to find out the difference in ANC competence (7 subgroups combined) items by 4 age groups, i.e., 15-25, 26-35, 36-45 and 46 and over and also ANC competence items and duration of work, i.e., 1-5, 6-10, 11-15 and 16 and over, only a single factor at a time. Oneway ANOVA analyse only a single factor. The result of between group average square is a measure of how different the groups are from one another. If they were all the same, the average square between groups would be zero. The more difference they have the larger this term becomes. F value is computed by dividing the between groups average square by the within group average ie

$$F \text{ value} = \frac{\text{Between group average square}}{\text{Within group average square}}$$

So F value is the ratio of between group average square and the within group average square. Therefore the larger the difference between groups, in comparison to their individual variance, the larger the F ratio and the more significant the result. The average square within group is the measure of variability of each individual group. This value is a measure of how different the individual observations are from the average. The differences are

statistically significant if the F value is larger than the critical value from the table. The differences are not statistically significant if the F value is smaller than the critical value from the table. The critical F value with 3 and 161 degree of freedom is found from the table is 2.60. Since in this study F value (for age group 0.3501 and for duration of work 1.2145) is smaller than tabled critical value. So apperent difference among groups are not statistically significant at 0.05 level (see table 9, 10).



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TABLE 11

OVERALL MEAN SCORE OF KNOWLEDGE ABOUT ANC OF BOTH
TERAI AND HILL ANMS.

VARIABLE	N	MEAN	SEM	P-VALUE
TOTAL SCORE 23	* 85	15.6118	±.313	0.517
	** 80	15.3125	±.340	

TEST OF SIGNIFICANCE FROM T-TEST

* TERAJ ANMS

** HILL ANMS

TABLE 12

NO AND PERCENTAGE OF BOTH TERAJ AND HILL ANMS WHO GOT
OF 50% ABOUT ANC KNOWLEDGE SCORE.

PERCENTAGE SCORE IN ANC KNOWLEDGE	TERAJ N=85 N (%)	HILL N=80 N (%)	P-VALUE <0.05
LESS THEN 50%	7 (8.5)	27 (33.7)	0.000
MORE THEN 50%	78 (91.5)	53 (66.3)	
TOTAL	85 (100)	80 (100)	

TABLE 13

MEAN AND SEM OF BOTH TERAI AND HILL ANMS IN ANC
KNOWLEDGE SCORE

VARIABLE	TERAI N=85		HILL N=80		P-VALUE <0.05
	MEAN	SEM	MEAN	SEM	
High risk pregnancy	4.200	+1.60	4.0500	+ .152	.499
Physical examination	4.1882	+ .139	4.2000	+ .096	.945
Urine test for sugar	1.4000	+ .077	1.4625	+ .077	.558
Nursing management	2.9412	+ .106	2.7250	+ .101	.143
Estimate date of delivery	.5412	+ .054	.7750	+ .047	.001
TT injection skill	.9294	+ .028	.8000	+ .045	.016
History taking	.7647	+ .046	.6000	+ .055	.023
Health education	.6471	+ .052	.7000	+ .052	.472

Test of statistical significance from t-test.

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TABLE 14

NO AND PERCENTAGE OF BOTH TERAJ AND HILL ANMS WHO RECEIVE EQUAL AND ABOVE 50% OF KNOWLEDGE TEST SCORE ABOUT ANC.

VARIABLE	TERAJ N=85		HILL N=80		P-VALUE <0.05
	NO	(%)	NO	(%)	
High risk pregnancy	54	(63.5)	33	(41.25)	.006
Physical examination	70	(82.3)	45	(56.2)	.000
Urine test for sugar	58	(68.2)	15	(18.75)	.000
Nursing management	66	(77.6)	59	(73.7)	.687
Estimate date of delivery	46	(54.11)	62	(77.5)	.002
TT injection skill	76	(89.4)	64	(80)	.142
History taking	65	(76.4)	48	(60)	.035
Health education	55	(64.7)	56	(70)	.576

Test of statistical significance from χ^2

ANC knowledge result -----Both groups of ANMs were asked to answer 23 questions on knowledge about ANC (see appendix). One score was given to each correct answer. Those who answered every item correctly will get a score of 23.

The overall mean score and SEM of the correct

answers about ANC knowledge were not significantly different (see table 11). The result regarding number and percentage of ANMS who got equal and above 50% of knowledge score were significantly different (see table 12).

There were statistical significant difference between the terai and the hill ANMS considering the result regarding the mean and SEM of knowledge about the estimated date of delivery, tetanus toxoid injection and history taking. However mean scores of knowledge about high risk pregnancy, physical examination, urine test, nursing management and health education were not significantly different (see table 13).

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CHAPTER VIII

DISCUSSION

The finding revealed that overall competence of terai ANMs were significantly higher than hill ANMs, implying that the terai ANMs were more competent than the hill ANMs. This could be due to partly communication facility. Terai ANMs can contact with senior persons or experts more easily if they need to solve any practical problem than the hill ANMs. Due to remoteness and communication difficulty, if the hill ANMs felt they needed to contact a senior or an expert, they had to walk many hours or days, which could be very tiring.

Looking at each competence item of both groups of ANMs, the competence in physical examination, abdominal examination and BP measurement were significantly different, i.e., the terai ANMs were higher than the hill ANMs. It implies that the terai ANMs were more competent in the above 3 ANC areas than the hill ANMs. This could mean that the terai ANMs carried out these procedures more frequently or regularly, that they might consider the principle during original training, or that they can transfer

the original training knowledge into better practice. Finding in other ANC competence area, i.e., in history taking, patient education, TT injection skill and communication skill revealed equal level between the two groups. In other words, in both groups of ANMs there were deficits in these field. Both groups need refresher training in those above fields.

Looking more into the details of the score of the respondents and using the criteria that overall scores of equal 60% and higher means satisfactory level of competence, while those below show a need for refresher training need. 21 out of 85 terai ANMs or 24.7% need training, while 50 out of 80 hill ANMs or 62.5% need training. This result also revealed that the terai ANMs were more competent than the hill ANM. The finding in relation to the both the terai and the hill ANMs competence in each ANC area had emphasized the essential of refresher training course except highest number of (96.6%) the terai ANMs were competent in BP measurement. This means nearly all of terai ANMs were competent in this item.

The overall mean scores and SEM of the correct answers about ANC knowledge were not significantly different. It means that both groups have similar knowledge level. It may be due to reason that

researcher left test question papers over night or two days according to subject request mostly in hill area. So it might give them time to discuss with each other or looked up the notes or books for correct answers. But using criteria about training need if ANMs score was less than 50%, then there was a significantly different result (see table 11). Out of 85 terai ANMs only 7(8.5%) of them got less than 50% while 27 (33.7%) the hill ANMs got less than 50%. The result indicated terai ANMs were more knowledgeable than hill ANMs. It could reflect less refresher training course (not received hill ANMs 93.8%) in comparison to terai (not received 78.8%) ANMs. In addition it might also reflect the fact that the hill ANMs received less supervision (not received 88.7%) than the terai ANMs (not received 78.8%). Considering the scores in individual ANC knowledge items, more than 50% of both terai and hill ANMs scored above 50% except in areas of high risk pregnancy and urine test where the hill ANMs scored less than 50%. It means an urgent need of training is required in those above two fields than others.

The result from logistic regression analysis revealed that ANMs groups (geographical area), supervision received and work load were the factors

associated to the level of competence. This indicates that ANMs whose workloads were less than 20 cases/day could maintain high level of competence. It also shows that more than 21 cases/day were too much for 2 ANMs, i.e., if there was too much work, they tended to skip some parts of the procedures and carried out only some procedures leading to a decrease or a loss of competence. ANMs who received supervision might have more opportunities to attain a higher level of competence than those who did not. Therefore sufficient supervision should be given in almost all areas of ANC items. Also after graduation, ANMs should be given the opportunity to practise under close supervisions, i.e., in regional hospital for at least six months to improve and make confidence in work.

The results showed that the terai ANMs had better competence than the hill ANMs. This may be due to several reasons such as: communication difficulty, lack of supervision, lack of evaluation and lack of reward or incentive for the hill ANMs. In addition, the hill ANMs might not be as conscious about their job and technique as the terai ANMs. They might be practising according to their own ideas, not paying enough attention to the theoretical

knowledge. They knew no body were monitoring their work. But the terai ANMs had to be conscious because any time supervisor or other senior person might visit to see their work. Many of the ANMs mostly in the hill, were not performing according to their job description because due to lack of staff, they were performing other jobs which they need not do such as wound dressing. In the hill, they did not schedule fixed dates for ANC, days, pregnant mothers did not visit health posts only for ANC check up. They came for multi purposes, e.g. to check up children, marketing, etc. Therefore ANMs had to take care of all kinds of diseases and took care of many patients in a day. Therefore they performed their tasks superficially and might loose their competence in ANC.

Therefore health agency personnel should have definite job description and try to strict on it and be encouraged to work according to their job description. The government should provide facilities for periodical transfer from the terai to the hill and vice versa. The health agencies should recognize the significance of the ANMs work regarding the preventive aspect of health services and try to give necessary supervision and refresher training course periodically

as necessary. Most of the pregnant women in rural area do not like to do ANC check up until they get some complications. Therefore, the government should try to emphasize and make available information about importance of ANC through mass media communication. This study observation was carried out once for each ANMs. Due to time and budget constraint, it was felt that a study using either a longer duration of observations or 2 or more repeated observation for one ANMs should be employed in future.

Recommendation

Recommendation will be given to related health agencies to assess the strategy to:-

1. Arrange refresher training courses in deficient areas of antenatal care.
2. Provide opportunities for periodical supervision and particularly opportunities to practise under close supervision in zonal hospitals to make them confident in their work.
3. Encourage ANMs to stick to their job description.
4. Provide opportunities for periodical transfer from hill to terai and vice versa.
5. Emphasize the importance of making available information about the importance of antenatal

care through mass media communication.

6. Consider possibilities of future research in a bigger scale with proper methodology i.e. taking care of limitation of this study.



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