

The Effect of Classification of Nutritional Status on the Interventions Provided in the National Nutrition Program

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ABSTRACT

This exploratory study looked at the process involved in growth monitoring sessions as carried out in the National Nutrition Programme. The specific aim of this study was to identify misclassification of nutritional status of mother and children arising from errors in taking weight and height and its reasons. Data were collected from seven CNCs of the Kapasia conducting growth monitoring sessions during July 17-27, using both qualitative and quantitative methods. In order to show this differences or errors, programme beneficiaries were re-weighed and re-measured by researchers using separate standard equipment directly after the CNP completed these measurements. Forty-five pregnant and lactating women were involved. No significant difference was seen between the weight measurements by the researchers and the CNPs on both of the scales. However, significant differences were seen in case of height measurement ($p=0.02$). On the standard height scale mean differences was also significant ($p=0.004$). Using paired t-tests to compare each of the different BMIs obtained for either group showed that there was a significant difference between the BMI for pregnant women calculated by the CNO and the BMI obtained by the researcher on measurements from standard equipment ($p=0.012$). Information was obtained on 47 children. Classifying the children by nutritional status, 27 were within the normal weight for age and the rest of them were malnourished. Using paired t-tests, there was no significant difference between weights obtained by the CNP and the researcher. A statistically significant difference also was not found between the nutritional status determined by the CNP and the researcher ($p=0.208$). The CNPs identified limited time, high workload, and lack of interest from beneficiaries as barriers to their jobs.

INTRODUCTION

This exploratory study looked at the process involved in growth monitoring sessions as carried out by the program health and nutrition workers in the National Nutrition Program. Since growth monitoring is the screening process that classifies nutritional status and identifies those who are growth faltering, it is the entry point for the supplementary feeding component of the program.

Supplementary feeding programs rely strongly on obtaining and using correct anthropometric data in order to ensure that program beneficiaries meet the entry and exit criteria for program services. Errors that occur in the collection and use of data may be due to improper training, equipment malfunction, or human error resulting from a variety of additional factors (such as time constraints, lack of motivation, etc). The outcome of these errors has the potential to be misleading both in terms of classification of nutritional status, and the services that are subsequently provided.

This problem is worth exploring because the growth monitoring sessions in the National Nutrition Program are strongly tied to and associated with other interventions and services provided by the program. The classification of nutritional status and provision of supplemental feedings is based on anthropometric measurements. Health and nutritional benefits achieved by growth monitoring programs range from using the weight screening to provide immediate treatment in the form of supplementation, to encouraging and sustaining positive changes and improvements through behavior changes and education. Growth monitoring can produce short-term benefits by identifying those who are malnourished (or those who are at risk for malnourishment due to growth faltering), and enrolling them in the supplemental feeding program. For this reason, the supplementary food provided is meant to rehabilitate those who are malnourished. The National Nutrition Program provides supplementary feeding in combination with additional monitoring, counseling and education, and behavior change strategies, including improving care seeking and feeding practices. These latter interventions have the potential and capacity to create sustainable improvements and increases in nutritional status. If accurate measurements are not obtained and this leads to the misclassification of status, the appropriate intervention will not be provided to the beneficiary. Because correctly obtaining and classifying anthropometric measurements are the first steps in this process, and this indicates the subsequent approach and intervention that will be provided, accurate procurement and utilization of height and weight data is a priority for the later steps in the process to be appropriate. For example, because of the importance of counseling provided in order to affect change, it is imperative that the counseling messages are appropriate to the actual situation and are provided according to the actual need of the participants.

Since the accurate obtainment of measurements is necessary to determine the nutritional classification and subsequent course of action, the implications of this study are that misclassification of weight status creates the risk of a course of action that is not necessarily appropriate to the individual's actual situation. Because the CNOs and CNPs are responsible for these measurements, the level of motivation, interest, and capacity of these workers, may also be related to the precision of these measurements. Additional factors related to error include knowledge and ability of the workers, and their commitment to their individual jobs and the program. While human error is a potential cause, there may also be problems with equipment usage and precision in arriving at the correct measurements. The potential problem that is created by inaccurate measurements is that improved practices and behavior changes will not be encouraged as needed. This has the potential to result in supplementation when it is

not needed, or failure to provide supplementation when it is needed. Referrals to healthcare facilities may likewise be provided (or neglected to be provided) inappropriately. There may be frequent re-admission for food supplementation for those not necessarily needing supplementation, or failure to admit those who are in need of supplementation. These errors raise costs associated with the program, but this also means that improvements in the growth and nutritional status of children will not be seen as quickly or permanently as is expected and desired from such a program.

Specific aims

1. To identify errors that occur in obtaining weight and height of beneficiaries:
 - Errors in obtaining the weight of children may lead to misclassification of nutritional status after plotting weight on growth charts, and the inability to address the child's actual nutritional status.
 - Errors in obtaining the weight and height of pregnant women may result in inaccurate BMI leading to inclusion or exclusion in supplementary feeding program.
2. To differentiate between errors in BMI calculation due to wrong method (formula) used versus inaccurate height and weight measurements.
3. To determine the source of these errors and determine whether they are due to technique, time constraints and excessive workload, poor motivation and commitment to program, need for additional training, or faulty equipment.
4. To determine the repercussions and consequences of these errors by comparing actual nutritional status with the documented nutritional status to identify differences in classification and intervention provided.
5. To identify barriers faced by CNPs in delivering effective education and counseling messages to program beneficiaries

We will seek to differentiate between mechanical errors of equipment and human error due to improper technique. In order to show this difference, program beneficiaries will be reweighed and remeasured by researchers on different equipment directly after the CNP completes these measurements. To assess the CNP's technique, she will also weight and measure beneficiaries on a gold standard scale and height board in addition to the equipment and the CNC.

Because measurements are recorded in various locations (such as registers and growth charts), the accuracy and consistency of these numbers will also be followed. BMI will be recalculated with the numbers obtained and used by the CNO to determine whether the CNO's calculation of BMI is done correctly. BMI will also be calculated by researchers using independently obtained height and weight to determine a difference in actual BMI and the figure obtained by the CNO.

RESEARCH DESIGN

This was an exploratory study that took place in the Kapasia region at CNCs that are conducting GM sessions. An Bengali- speaking interviewer will be utilized in order to ask questions from the mothers, CNPs, and to collect information from registers. Two separate questionnaires were prepared, one for children under two years of age and one for pregnant and lactating women. The questionnaires were created to obtain socioeconomic data, to collect measurements obtained by the CNP from the current GM session (in addition to previous sessions), and to collect anthropometric data obtained by both the researcher and the CNP from various pieces of equipment (Uniscales and height scales from the CNC, and brought by the researches for the purpose of this study).

Verbal consent will be taken by all beneficiaries prior to beginning collecting information or asking them questions.

An in- depth interview will take place with each of the CNPs whose CNC was visited for this study. The interview will be used to identify any reported barriers, constraints, and difficulties the CNP feels related to her job. Of interest are the issues related to the collection of anthropometric measurements in the GM session, and subsequent intervention provided.

Sample Design and Sampling Plan

Seven CNCs were randomly select from Kapasia. At each CNC, we attended one Growth Monitoring session where we will reweigh 10 of the children present. We will select 5 women from each session to reweigh and remeasure. The mothers of the children selected, in addition to the pregnant and lactating women selected, will also be interviewed briefly for socioeconomic information. The register maintained by the CNP including information about weight history, nutritional status history, recorded age, and other information will be consulted with the assistance of the CNP. An in-depth interview will take place with each CNP.

This gave data from 70 children, 7 CNPs, and 35 pregnant or lactating women, which is felt to be an accurate representation of this particular region's CNCs. Over sampling will occur when possible in order to account for children who are under 6 months of age and therefore ineligible for food supplementation, and for women who are less than 4 months pregnant.

The Survey Instrument

The questionnaires for the mothers of children under 2 years of age, and for pregnant and lactating women were developed in order to capture a range of information relating to trends in nutritional status, weight, growth, and current (plus history of) supplementation status. The questionnaires also allow for collection of measurements obtained by the CNP, measurements obtained by the researcher, and identification of the equipment used to take these measurements.

Pretest Results

The first field visit using the questionnaires and outside equipment occurred July 16, 2006. At this time we noticed issues related to the logistics of the weight of each beneficiary being obtained by two different people (CNP and researcher) on two different pieces of equipment, resulting in a total of 4 separate measurements per beneficiary. Challenges arose related to

ensuring the CNP was not recording measurements obtained by researchers on outside equipment in the register. Also, the presence of two additional people not affiliated with the program, plus the CNO and Field Supervisor at the GM session made it different than usual.

At the first session, we were unable to obtain all of the measurements. The mothers frequently leave directly after their measurements are taken, so it was common that we obtained some, but not all, of the measurements needed.

Following the first session, modifications were made to the questionnaire related to the format to facilitate data collection, and for clarity of questions. For example, the original questionnaire had questions regarding the specific intervention provided, and whether it was appropriate. It contained questions about the content of the counseling provided to each beneficiary. After attending the Growth Monitoring sessions and seeing the way they are organized and conducted, we realized that some of the questions would not be useful in the analysis. From our observations of the sessions we saw that counseling, when delivered, was given to the entire group. The weights were not typically plotted on the cards and explained to the mothers during the sessions with specific, individualized messages. Therefore, questions regarding these aspects were felt to be expendable.

RESULTS

PREGNANT AND LACTATING WOMEN

A total of 45 pregnant and lactating women were involved in this study. Specifically, 34 were pregnant, and 11 were lactating. The mean BMI of pregnant women, per CNO calculation, was 21.6. For lactating women, the mean BMI was 22.0. When using the numbers obtained for height and weight and recalculating the BMI, the mean for pregnant women was 21.7 and the mean for lactating women was 21.76. Calculating the BMI from the height and weight obtained by the researcher on outside equipment gave a mean for pregnant women of 21.45, and 21.82 for lactating women.

Using paired t-tests to compare each of the different BMIs obtained for either group showed that there was only a significant difference between the BMI for pregnant women calculated by the CNO and the BMI obtained by the researcher using height and weight measurements from outside equipment ($p = .012$).

6 women in total have a BMI less than or equal to 18.5 according to both the CNO calculation and BMI obtained by the researcher. Of the 45 women, 4 receive supplementation (3 pregnant, 1 lactating). 2 lactating women have a BMI less than 18.5 but do not receive supplementation. 4 pregnant women have a BMI less than 18.5 but do not receive supplementation and are in their first months of pregnancy. Each of the women receiving supplementation have a BMI greater than 18.5.

Comparing the BMI calculated by the CNO and then recalculated by the researcher using the same numbers showed that there was not a statistical significant difference, but there were frequently differences. Notably, the CNO did not round to the nearest tenth decimal place. Because the height and weight were the same, the BMI difference is likely the result of calculation error, or error in transferring the number from the calculator to the register.

25 women had a positive weight change over the past three months. 4 women lost weight over three months. The remainder of the women did not have three months worth of weight measurements.

Descriptive Statistics

State of Woman		N	Minimum	Maximum	Mean	Std. Deviation
1	Month of Pregnancy	34	1	9	5.47	2.121
	Period of Lactation	34	99	99	99.00	.000
	BMI Calculated by CNO	34	15.1	29.0	21.553	2.5525
	BMI Recalculated by Researcher	34	15.4	29.0	21.709	2.5144
	BMI Calculated by Researcher with Actual Height and Weight	31	14.3	28.6	21.471	2.8185
	Valid N (listwise)	31				
2	Month of Pregnancy	11	99	99	99.00	.000
	Period of Lactation	11	1	6	3.55	1.368
	BMI Calculated by CNO	11	17.6	28.0	22.036	3.2828
	BMI Recalculated by Researcher	11	17.6	26.0	21.755	2.9686
	BMI Calculated by Researcher with Actual Height and Weight	11	17.6	25.9	21.818	2.9772
	Valid N (listwise)	11				

Paired Samples Correlations

State of Woman			N	Correlation	Sig.
1	Pair 1	BMI Calculated by CNO & BMI Recalculated by Researcher	34	.991	.000
	Pair 2	BMI Calculated by CNO & BMI Calculated by Researcher with Actual Height and Weight	31	.977	.000
2	Pair 1	BMI Calculated by CNO & BMI Recalculated by Researcher	11	.971	.000
	Pair 2	BMI Calculated by CNO & BMI Calculated by Researcher with Actual Height and Weight	11	.969	.000

Paired samples Test

Paired Samples Test										
State of Woman			Paired Differences				t	df	Sig. (2-tailed)	
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower				Upper
1	Pair 1	BMI Calculated by CNO - BMI Recalculated by Researcher	-1559	3422	0587	-2753	-0365	-2.656	33	.012
	Pair 2	BMI Calculated by CNO - BMI Calculated by Researcher with Actual Height and Weight	1258	6072	.1090	-0969	3485	1.154	30	.258
2	Pair 1	BMI Calculated by CNO - BMI Recalculated by Researcher	2818	8097	2441	-2622	8258	1.154	10	.275
	Pair 2	BMI Calculated by CNO - BMI Calculated by Researcher with Actual Height and Weight	2182	8340	2515	-3421	7785	.868	10	.406

Children 6-24 months

Information was obtained on 68 children. Of these children, 21 were under 6 months of age, 38 were female, and 30 were male. Classifying the children by nutritional status, 27 were within the normal weight for age, 16 were mildly malnourished, 12 were moderately malnourished, and 13 were severely malnourished.

Using paired t-tests, there was not a significant difference between the weight obtained by the CNP and the weight obtained by the researcher. A statistically significant difference also was not found between the nutritional status determined by the CNP and the researcher ($p=0.208$).

10 children are currently receiving food supplementation. Of the children receiving supplementation, 6 are moderately malnourished and 4 are severely malnourished. Two children have been receiving supplementation since March 20, 2006 and two since January 19, 2006.

Among the 58 children not receiving supplementation at this time, 9 are severely malnourished and 8 are moderately malnourished. 8 of the 9 severely malnourished children who are not receiving supplementation have been severely malnourished for the past three months. 6 of these children have never received supplementation before in their lives.

In the past month, 9 children were found to be growth faltering from one nutritional status classification down to a lower level (8 children moved from mild to moderate malnutrition, and one moved from moderate to severe malnutrition). Of these 9 children with growth faltering, only one who faltered from mild to moderate malnutrition was started on supplementation this month.

A total of 13 out of the 68 children were classified as severely malnourished this month.

Currently Provided Supplementation * Current Nutritional Status Crosstabulation

Count		Current Nutritional Status				Total
		0 = Normal	1 = Mild	2 = Moderate	3 = Severe	
Currently Provided	0	26	15	8	9	58
Supplementation	1	0	0	6	4	10
Total		26	15	14	13	68

Current Nutritional Status * Currently Provided Supplementation Crosstabulation					
			Currently Provided Supplementation		Total
			0	1	
Current Nutritional Status	0 = Normal	Count	7	0	7
		% within Current Nutritional Status	100.0%	0%	100.0%
		% within Currently Provided Supplementation	18.9%	0%	14.9%
		% of Total	14.9%	0%	14.9%
	1 = Mild	Count	13	0	13
		% within Current Nutritional Status	100.0%	0%	100.0%
		% within Currently Provided Supplementation	35.1%	0%	27.7%
		% of Total	27.7%	0%	27.7%
	2 = Moderate	Count	8	6	14
		% within Current Nutritional Status	57.1%	42.9%	100.0%
		% within Currently Provided Supplementation	21.6%	60.0%	29.8%
		% of Total	17.0%	12.8%	29.8%
	3 = Severe	Count	9	4	13
		% within Current Nutritional Status	69.2%	30.8%	100.0%
		% within Currently Provided Supplementation	24.3%	40.0%	27.7%
		% of Total	19.1%	8.5%	27.7%
	Total	Count	37	10	47
		% within Current Nutritional Status	78.7%	21.3%	100.0%
		% within Currently Provided Supplementation	100.0%	100.0%	100.0%
		% of Total	78.7%	21.3%	100.0%

Current Nutritional Status

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0 = Normal	27	39.7	39.7	39.7
1 = Mild	16	23.5	23.5	63.2
2 = Moderate	12	17.6	17.6	80.9
3 = Severe	13	19.1	19.1	100.0
Total	68	100.0	100.0	

Nutritional Status One Month Ago

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0 = Normal	24	35.3	35.3	35.3
1 = Mild	22	32.4	32.4	67.6
2 = Moderate	9	13.2	13.2	80.9
3 = Severe	13	19.1	19.1	100.0
Total	68	100.0	100.0	

Nutritional Status Two Months Ago

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 = Normal	23	33.8	34.3	34.3
	1 = Mild	24	35.3	35.8	70.1
	2 = Moderate	8	11.8	11.9	82.1
	3 = Severe	11	16.2	16.4	98.5
	99	1	1.5	1.5	100.0
	Total	67	98.5	100.0	
Missing	System	1	1.5		
Total		68	100.0		

IN DEPTH INTERVIEW

An in depth interview was conducted with each of the 7 CNPs. Each CNP came to the Kapasia NNP office on July 26- July 27 and was individually asked questions based on a check list that was developed. The checklist included information regarding the ability of the CNP to identify nutritional status, state appropriate interventions based on nutritional status, describe proper counseling messages per a given situation, and comment on her ability to complete all of her given job tasks.

This interview showed that the majority of the CNPs were knowledgeable about malnutrition and the interventions provided through them in the Growth Monitoring sessions. They stated that they felt their job was important and worthwhile. In general they were able to complete their tasks, but mentioned difficulty due to time constraints and especially when they did not have the support of the FS or CNO. A common statement amongst the CNPs was that remuneration did not match the amount of work involved in their job.

Each of the CNPs was present for the most recent refresher training. The issue of training came up again later in the interview for two other CNPs when they stated that additional training is helpful and needed due to the increase of responsibilities and tasks required of them.

All of the CNPs were able to use a growth card to demonstrate proper growth curves, and identify faltering and various levels of malnutrition. However when asked about the appropriate intervention required, three of the seven CNPs were unable to sufficiently explain the intervention necessary for severely malnourished children.

Each CNP stated that she calculated the BMI. Only two CNPs added that the CNO checks and finalizes the BMI calculation. The CNPs stated that certain factors contribute to ease in BMI calculation. Among these were the presence and assistance of the CNO and conducting clustered GM sessions.

The CNPs identified limited time, high workload, and lack of interest from beneficiaries as barriers to their jobs. Three CNPs listed time and workload as barriers, while one listed lack of interest from participants. Further explanation indicated that they feel all of the tasks are difficult to accomplish within the finite time that GM sessions are held. Mention was made of the usefulness and support of the CNO and FS in helping to accomplish everything in a given time.

Among all of the CNPs, there were similar statements of beneficiaries recognizing the role of the CNP as helpful or informative. Similarly, the CNPs all expressed feeling as if their job is important. CNPs made comments regarding the fact that they deliver messages to mothers regarding health and nutrition that are not given elsewhere. They describe their job as teaching and helping mothers, and believe it is important, needed, and worthwhile. One CNP commented that her increased knowledge and training that she acquired through this position and ability to advise mothers appropriately provided her with a satisfactory feeling. Another CNP described feeling valued by program beneficiaries.

The CNPs were asked questions regarding the manageability of their workload in general and specifically in relation to GM sessions. When asked about overall workload, statements were made again regarding remuneration and salary in comparison to the amount of work they were doing. Workload related to the GM sessions elicited responses regarding the difficulty involved in accomplishing all tasks within the constrained time of the GM session only. Three CNPs stated that both workload in general and work involved in GM sessions was excessive. Two of these CNPs had similar perceptions of workload and payment not matching, and difficulty meeting the time constraint of the GM session. One CNP stated that she did not believe her overall workload was excessive, but stated that she felt difficulty in accomplishing all tasks involved in the GM session. Three other CNPs claimed to feel that their workload was manageable both in general and at the GM sessions. One of these women qualified her statement by adding that the presence of the CNO and the FS at the GM session made the job manageable.

In terms of the ability to complete her job tasks carefully and accurately, each CNP was asked to identify obstacles she felt. Three CNPs stated that the time constraints in the GM session contributed to inaccuracy. They described that having to do many tasks quickly to accomplish everything leads to improper results. Two CNPs stated that they did not feel as if they were trained sufficiently. One CNP stated that she would be able to complete her work more carefully if her salary was higher. One denied having any reasons that she would not be able to do her job properly.

CNPs were asked questions about reception of counseling messages, and content of the counseling that they commonly provide to mothers and pregnant women. Each CNP stated that women follow the advice she gives during counseling sessions. One CNP stated that pregnant and lactating women seem to be less compliant with counseling than the mothers of children under two. Five CNPs list financial reasons as preventing families from acquiring different types of foods that are recommended. Two describe work practices within the family structure as preventing women from taking appropriate rest during pregnancy.

CNPs were asked to list counseling they provide to pregnant women. The most common messages delivered included receiving enough rest during pregnancy, going for antenatal visits, and increasing the amount of food consumed during pregnancy. Three CNPs also mentioned counseling pregnant women about not lifting too much weight. One CNP included counseling about taking iron tablets during pregnancy, drinking more water, and eating more green, leafy vegetables.

All of the CNPs provide counseling regarding exclusive breastfeeding. Five CNPs stated they provided counseling to encourage feeding of colostrum to newborns. Four CNPs provide counseling about proper complementary foods after 6 months of age.

The CNPs identified several other topics for counseling, though not with the consistency of messages pertaining to pregnancy or infant care. Four CNPs provide counseling about using iodized salt. Clean drinking water, sanitary latrines, vitamin A supplementation, and doctor's

visits for illness were each mentioned by two CNPs. One CNP also mentioned hand-washing and eating foods rich in iron.

APPENDIX

Nutritional Status Classification of NNP

Form C. For Child

Section 1. Identification

No.	Identification Variables	
C.1	Number of CNC	
C.2	Serial Number of Child	
C.2.a	Name of Child	
C.3	Gender : 1 = Male; 2 = Female	
C.4	ID number (Number of CNC+ Number of child+ Gender)	
C.5	Date (Day/Month/Year)	

Section 2. Socio-economic history

C.6	Age (months)	
C.7	Age of mother (year)	
C.8	Education level of mother (completed year)	
C.9	Education level of father (completed year)	
C.10	Marital status of mother: 1 = Unmarried, 2 = Married, 3 = Divorced, 4 = Widowed, 5 = Separated, 6 = Other	
C.11	Mother's occupation*	
C.12	Father's occupation*	
C.13	Total number of family members	
C.14	Total number of children in family	
C.15	Household head: 1 = Father, 2 = Mother, 3 = Brother, 4 = Other	
C.16	What was the income - expenditure profile in child's household last year? (ask mother) 1 = Surplus; 2 = Equal; 3 = sometimes deficit; 4 = Always deficit	
	What are the building materials of your main building room? 1 = Earth, 2 = Straw/Cchone, 3 = Polythene 4 = Brick, 5 = Tin, 6 = Bamboo, 7 = other (specify)	
C.17	Roof-----	
C.18	Wall-----	
C.19	Floor-----	

* Occupation:	09. Motorized transport driver	16. Beggar
01. Agriculture (Only own land)	10. Petty or middle class business	17. Unemployed
02. Farmer (Only leased land)	11. Potter Blacksmith Cobbler Tailor	18. Student (6 yrs)
03. Farmer (Own & Leased land)	Construction worker Fisher etc.	19. Housework Housewife
04. Agri-labour Day-labour	12. Big businessman (Whole seller)	20. Disabled
05. Unskilled labour	13. Govt. or non-Govt (non officers)	21. Retired
06. Government worker	14. Govt. or non-Govt. officers	22. Other
07. Part-time maid servant	15. Professional (Teacher/Lawyer	
08. Non motorized transport driver	Doctor Nurse)	

Section 3. Anthropometric Measurement

C.20	Weight obtained by CNP Scale #1 (CNC scale)	
C.21	Weight obtained by CNP Scale #2 (Other scale)	
C.22	Weight obtained by Researcher Scale #1 (CNC scale)	
C.23	Weight obtained by Researcher Scale #2 (Other scale)	
C.24	Weight recorded in register. (kg)	
C.25	Weight plotted on growth chart. (kg)	
C.26	Current reported nutritional status. (0 = normal, 1 = mild, 2 = moderate, 3 = severe)	
C.27	Nutritional status using weight recorded by researcher. (0 = normal, 1 = mild, 2 = moderate, 3 = severe)	
C.28	Weight last month (1 month ago) (kg)	
C.29	Nutritional status last month (0 = normal, 1 = mild, 2 = moderate, 3 = severe)	
C.30	Weight 2 months ago (kg)	
C.31	Nutritional status 2 months ago (0 = normal, 1 = mild, 2 = moderate, 3 = severe)	
C.32	Is the child breastfed? 1 = yes, 0 = no	
C.33	Supplementation currently provided? 1 = yes, 0 = no	
C.34	Date supplementation was started (Day/Month/Year, 99 = N/A)	
C.35	Is this the first time the child is receiving supplementation? 1 = yes, 0 = no, 99 = N/A	
C.36	Number of previous times requiring supplementation in child's lifetime. 99 = N/A	
C.37	Nutritional status upon entry to supplementary feeding program. (0 = normal, 1 = mild, 2 = moderate, 3 = severe, 99 = N/A)	
C.38A	Intervention provided correctly according to classification of nutritional status. (1 = yes, 0 = no)	
C.38B	Intervention provided at this GM session: 1 = Counseling, 2 = Supplementation, 3 = Referral to health care facility	
C.39	If counseling describe the subject	

Nutritional Status Classification of NNP

Form W. For Pregnant or Lactating Woman

Section 1. Identification

No.	Identification Variable	
W.1A	Number of CNC	
W.1B	Name of CNC	
W.2	Serial Number of Woman	
W.2.a	Name of Woman	
W.3	State of Pregnancy: 1 = Pregnant, 2 = Lactating	
W.4	Month of Pregnancy (N/A- Lactating)	
W.5	Period of Lactation (N/A- Pregnant)	
W.6	ID number (Number of CNC+ Number of woman+ state of pregnancy)	
W.7	Date (Day/Month/Year)	

Section 2. Socio-economic history

W.8	Age of Woman (year)	
W.9	Education level of woman (completed year)	
W.10	Education level of husband (completed year)	
W.11	Marital status of mother: 1 = Unmarried, 2 = Married, 3 = Divorced, 4 = Widowed, 5 = Separated, 6 = Other	
W.12	Woman's occupation*	
W.13	Husband's occupation*	
W.14	Total number of family members	
W.15	Total number of gravida	
W.16	Household head: 1 = Father, 2 = Mother, 3 = Brother, 4 = Other	
W.17	What was the income - expenditure profile in household last year? 1 = Surplus; 2 = Equal; 3 = sometimes deficit; 4 = Always deficit	
	What are the building materials of your main building room? 1 = Earth, 2 = Straw/C'chone, 3 = Polythene 4 = Brick, 5 = Tin, 6 = Bamboo, 7 = other (specify)	
W.18	Roof-----	
W.19	Wall-----	
W.20	Floor-----	

* Occupation:	09. Motorized transport driver	16. Beggar
01. Agriculture (Only own land)	10. Petty or middle class business	17. Unemployed
02. Farmer (Only leased land)	11. Potter/Blacksmith/Cobbler/Tailor	18. Student (< 6 yrs)
03. Farmer (Own & Leased land)	Construction worker/Fisher etc.	19. Housework
04. Agri-labour/Day-labour	12. Big businessman (Whole seller)	Housewife
05. Unskilled labour	13 Govt. or non-Govt (non officers)	20. Disabled
06. Government worker	14. Govt. or non-Govt. officers	21. Retired
07. Part-time maid servant	15. Professional (Teacher/Lawyer	22. Other
08. Non motorized transport driver	Doctor/Nurse)	

Section 3. Anthropometric Measurement

W.21	Weight obtained by CNP (kg) Scale #1 (CNC scale)	:
W.22	Weight obtained by CNP (kg) Scale #2 (Other scale)	:
W.23	Weight obtained by Researcher (kg) Scale #1 (CNC scale)	:
W.24	Weight obtained by Researcher (kg) Scale #2 (Other scale)	:
W.25	Height obtained by CNP (cm) Scale #1 (CNC scale)	:
W.26	Height obtained by CNP (cm) Scale #2 (Other scale)	:
W.27	Height obtained by Researcher (cm) Scale #1 (CNC scale)	:
W.28	Height obtained by Researcher (cm) Scale #2 (Other scale)	:
W.29	Supplementation currently provided? (1 = yes, 0 = no)	
W.30	Date supplementation was started for the woman. (Day/Month/Year) N/A=99	:
W.31	BMI calculated by CNO	:
W.32	Qualifies for supplementary feeding? (1 = yes, 0 = no)	
W.33	BMI calculated by researcher using height and weight obtained by CNP	:
W.34	BMI calculated using height and weight obtained by researcher	:
W.35	BMI one month ago N/A=99	:
W.36	BMI two months ago N/A=99	:
W.37	Breastfeeding (1 = yes, 0 = no)	
W.38A	Intervention provided correctly according to classification based on calculated BMI? (1 = yes, 0 = no)	
W.38 B	Intervention provided at this GM session: 1 = Counseling, 2 = Supplementation, 3 = Referral to health care facility	
W.39	If counseling describe the subject	

CNP/CNO Checklist for In-Depth Interview

1. CNP present at previous refresher training?
(from attendance records)

Growth Monitoring

2. CNP can interpret growth curves indicative of faltering and normal growth when asked to describe.
3. BMI for pregnant women is calculated by CNO or CNP.
4. CNO/CNP ability to complete and interpret BMI calculation during GM session
Difficulty
Without difficulty
5. CNP can describe appropriate intervention for a child and mother with:
Severe malnutrition
Moderate malnutrition
Mild malnutrition.

Perception of Job

6. Description of any barriers felt in completing work
Time
Workload
Distractions
Unrealistic expectations
Disinterest by participants
Lack of organizational support
Other _____
7. Interpretation of beneficiaries' perceptions about CNPs.
Knowledgeable
Helpful
Informative
Useless
Other _____
8. CNP's description of her job.
Useful
Important
Meaningless
Difficult
Beneficial
Other _____
9. Description of workload in general, and on days of GM sessions
Excessive
Manageable
Other _____
10. Reasons CNP identifies as interfering with ability to carefully and accurately complete job
Lack of training
Lack of structural support
Not enough time
Too many tasks
Inefficiency
Other _____

Counseling

11. Interpretation of mothers' reception of counseling
 - Follow advice
 - Disregard advice
12. Identification of reasons that the mothers receiving counseling are unable to make the changes that are suggested
 - Disinterest
 - Financial constraints
 - Misunderstand messages
 - Other _____
13. Counseling Involves Messages related to Pregnancy Care
 - Rest during pregnancy
 - Iron tablets during pregnancy
 - Antenatal visits
 - Increased food intake during pregnancy
14. Counseling Involves Messages related to Newborn/Infant Care
 - Colostrum fed to newborn
 - Exclusive breastfeeding 0-6 months
 - Proper introduction of complementary foods after 6 months
15. Other Counseling Provided
 - Drinking water
 - Sanitary latrines
 - Handwashing
 - Deworming
 - Iodized salt
 - Use of ORS