Chapter 5:

Community based health state valuations in Kondakkal village of Andhra Pradesh, India.

Study population:

To identify a village, we approached another civil society institution, namely MV Foundation, which is working to improve educational status of people. The MV Foundation is operating in many areas of the Ranga Reddy district. We requested them to help us identify a typical village, with more than 1000 households. Kondakkal was chosen on the basis of their suggestions and an exploratory visit by faculty from the Institute of Health Systems (IHS). Kondakkal has a population of 2342 adults and is typical of villages in Telengana area of Andhra Pradesh.

The electoral (voters) list for females and males containing 1127 and 1215 entries respectively was used as the sampling frame. A simple random sample of 550 persons from each of the two strata was drawn. Altogether, a list of 1100 potential valuers was prepared, consisting equal number of females and males. 1010 persons were actually interviewed (Non response proportion = 0.08). Table-5.1 shows age sex distribution and literacy of sampled population who did health state valuation using card sort and visual analogue scales. Similar data about the workshop participants, from Table-4.3, is reproduced for comparison. In addition, distribution of 15 years and older population in rural Andhra Pradesh according to the 1991 census is shown in the last three columns of Table-5.1. Age sex distribution is on expected lines and appears representative of the adult population of the village, except for the very young adults in the age group 18-19 years. Persons in this age group are slightly under represented.

Literacy and years of schooling by valuers is shown on the lower panel of Table-5.1. For comparison, NFHS-2 survey (IIPS and ORC Macro, 2000) data for rural females of the state of AP, for a similar period, i.e. 1998-99 is shown in the right columns. Years of

schooling data for the MDHSV workshop participants is shown in the left columns. In contrast to the workshop participants, about 70% of the valuers in the community survey were illiterate. The level of illiteracy in the sampled population is comparable with state-wide illiteracy recorded around the same time by the NFHS-2 survey.

Table-5.1: Age and Literacy of health state valuers.

Characteristic	Workshops			Survey			AP Rural		
	Females	Males	All	Females	Males	All	Females	Males	All
Number of valuers	88	92	180	491	519	1,010	1991 Census / NFHS-2		
Age Group									
18-19	0	0	0	2.51	2.98	2.75	6.88	6.63	7.08
20-29	67.05	61.96	64.44	31.11	41.67	36.52	29.68	27.54	30.13
30-44	23.86	23.91	23.89	35.70	33.13	34.38	31.38	32.99	32.47
45-59	9.09	13.04	11.11	19.83	15.28	17.50	19.59	20.18	18.98
60-69	0	1.09	0.55	9.19	5.56	7.32	8.11	8.32	7.42
70	0	0	0	4.18	4.37	4.27	4.37	4.33	3.92
Years of schooling									
0	0	0	0	84.93	56.07	70.1	71.6		
1-5	0	0	0	4.28	12.91	8.71	5.6		
6-9	0	0	0	5.7	11.18	8.51	13.3		
10-12	0	0	0	4.07	17.53	10.99	4.1		
13-15	45.45	16.3	30.56	1.02	1.73	1.39	1.2		
16-18	43.18	65.22	54.44	0	0.58	0.3			
19+	11.36	18.48	15	0	0	0			

[1] AP Rural population is from 1991 census for rural areas of Andhra Pradesh.

[2] Literacy figures for AP-Rural are taken from NFHS-2 which refers to 1998-99. NFHS literacy data is for women aged 15-49 years, and is available for females only since the survey covers only women.

The Constitution of India recognises certain castes as specially disadvantaged. These castes included in the appropriate schedule of the constitution are referred to as Scheduled castes. The Constitution provides another schedule of tribes and aboriginal people living mostly in remote areas. These groups are called scheduled tribes. Back ward classes are caste groups recognised by the state government as economically backward. All others not covered in any of the above three groups are classified under the residual category of "Other castes". Table-5.2 shows distribution of health state valuers by their caste. Caste composition of the

valuers is broadly similar to the all state distribution of population by caste. Scheduled castes are slightly over represented in the sample.

Table-5.2: Caste composition of health state valuers in Kondakkal village, AP. Percentages

Caste group	Kondakkal			All AP
	Females	Males	Persons	Persons
Scheduled Castes	19.55	19.27	19.41	15.90
Scheduled Tribes	7.33	6.17	6.73	6.30
Back ward Classes	51.12	56.07	53.66	
Other castes	22.00	18.50	20.20	

Table-5.3: Ownership of household and agricultural assets by households of health state valuers in Kondakkal village.

Type of asset	Female	Male	Persons	%	AP Rural (NFHS-2)
Own house	473	510	982	100	
Radio	117	157	273	28	31.6
TV (B/W or Color)	263	308	571	58	22.1
Refrigerator	15	28	43	4	2
Bicycle	312	375	687	70	34.7
Two wheeler	117	95	273	28	4.3
Sewing machine	54	55	109	11	5.5
Sofa	30	44	74	8	
Owns Land	405	445	849	87	55.2
Live stock	192	240	432	44	
Bullock	183	211	394	40	
Bullock Cart	52	73	125	13	10.4
Water Pump	237	267	504	51	9.1
Electric Fan	333	367	699	71	43.8

Household durable and agricultural assets give indirect evidence of the economic status of households in rural areas. Table-5.3 shows the number of valuer households that own the listed household durable and agricultural assets. Similar figures from a state wide random sample of about 4000 households obtained by the NFHS-2 survey is shown in the last column. The households in Kondakkal village appear to be comparatively better off than the state average for rural areas. For example, 87% of sampled households in Kondakkal own some land compared to 55% in case of the sate-wide NFHS-2 random sample. Kondakkal households are better in terms of ownership of almost all household durable for which comparable data is available, except for radios. Access to various utilities like water supply, toilets, household fuel etc. give an idea about the economic status and immediate environment of people. Table-5.4 shows access to such services by valuer's households. Most

people live in semi pucca houses, have protected water supply, use fire wood for cooking and do not have access to flush toilets. Here also the households in Kondakkal fair much better than the sate wide rural average from NFHS-2 sample. Comparatively more number of households in Kondakkal have access to protected water supply, flush toilets, cooking gas, and enjoy comparatively better housing.

Table-5.4: Access to health related utilities by valuer's households.

Utility / Living facility	Utility / Facility Type	Kondakkal	(NFHS-2) Rural AP
Water source	Private protected	22.67	
Protected: Piped / deep bore well	Public protected	72.08	40.00
Unprotected: shallow bore well / open well	Private unprotected	0.89	
	Public unprotected	4.06	59.40
	Natural unprotected	0.10	
	Other	0.20	0.60
Toilets	Private flush toilet	12.48	
	Shared flush toilet	0.10	6.50
	Public flush toilet	0.50	
	Pit latrine	5.64	6.00
	Other	0.50	
	No facility	80.79	87.50
Primary fuel used for cooking	Liquid petroleum gas (LPG)	10.00	6.70
	Biogas	2.18	0.70
	Kerosene	12.18	3.10
	Coal	0.30	0.10
	Fire wood / straw	75.15	86.50
	Dung	0.10	0.20
	Other	0.10	2.70
Type of house	Rented	0.99	
	Pucca	29.77	29.80
	Kachha	9.40	37.20
	Semi pucca	59.84	32.90

Standard of living index (SLI) was computed following the scoring system adopted by NFHS-2 (IIPS and ORC Macro, 2000 p27-29). Comparable data is available for most of the household durable. However, the Kondakkal data does not have information about ownership of chairs. Instead it gives information about ownership of sofa sets, which have been scored by us as chairs. We did not collect information about ownership of mattress, pressure cooker, cot / bed, table and clock or watch. Each of these items get a score of 1 if present and 0 otherwise, according to the NFHS-2 SLI scoring plan. We did not collect information about the extent of land owned and irrigation status of land. Instead, we ascertained if the valuer's household did own any land or not. Thus all land owning households get a score of 2. If we had full details about extent of land owned, some would have received higher scores of 3 or 4, depending on the extent owned. In addition, some of the households would have got an additional score of 2 in case some of the land owned by them was irrigated. Thus the total SLI score of Kondakkal households would be slightly lower than the NFHS-2 SLI scores. Table-5.5 compares distribution of Kondakkal households and NFHS-2 AP rural sample households by the standard of living index (SLI). Clearly the households in Kondakkal enjoy a higher standard of living compared to the state average for rural areas. Only 27% of Kondakkal households fall in low SLI category compared to 48% for the state wide rural areas sample. Nearly 62% of Kondakkal households are in medium SLI category compared to only 43% for the state wide rural sample. Percentage of households in high SLI category is also higher for Kondakkal village.

Table-5.5: Standard of Living Index (SLI) of households of health state valuers in Kondakkal village, and NFHS-2 sample for rural AP.

SLI	Kondakkal	AP Rural
Low (less than 14)	27.03	47.8
Medium (15 to 24)	61.68	43.2
High (25 or more)	11.29	8.5

Valuation protocol:

Card sort and VAS:

Each valuer was required to assess 11 health states, including his / her own health state. The valuation exercises were limited to card sorting and visual analogue scaling (VAS). The card sorting and VAS exercises are similar to the ones done in the MDHSV workshops. The primary challenge here was to come up with a 6D5L description system for use by semi literate or illiterate persons. The graphical description system, developed for this purpose has already been described. We had to develop a Velcro mounted version of the graphical description system to facilitate preparation of the "Your own health state today" cards to be used in the card sorting and VAS exercises. Design of this is described below under "HSV kit for general population".

Pilot testing of valuation exercise protocol:

The Telugu version of health state cards and the pictorial format of the instrument was pilot tested in the Kondakkal village by IHS faculty. Study coordinator and faculty learnt and perfected their interviewing skills through this process. Some amendments were made to the valuation protocol. For example, the decision to substitute more descriptive labels for the short disease labels was taken to minimise effect of disease labels on the valuation.

The health state valuation (HSV) kit for general population:

The HSV kit for a general population had to be designed keeping in mind the lowest common literacy and educational status of the population. For most developing countries, including a state like Andhra Pradesh, this implies that the HSV kit design should enable illiterate valuers to express their judgement about the severity of different health states. The HSV kit for general population to be carried by surveyors included the following:

1. A visual scale platform consisting of a $2' \times 1'$ cork board with a visual scale pinned up on it.

2. The visual scale consisting of a straight line showing the two end points, namely (a) Best imaginable health state and (b) Death. These two points are connected by a straight line. The line is divided into 100 equal parts with labelling for every even divider.
3. One set of Velcro mounted 6D5L graphical description cards to enable the valuer pictorially describe his / her own health state. The set consists of six dimension holders, two sets of 30 severity level picture cards, and a "Your own health state" description holder. Each dimension holder is a card with five small pieces of Velcro fixed on it to hold the severity level picture cards. The severity level picture cards, with a small piece of Velcro fixed on the back of each. There are altogether 30 such severity level picture cards at the rate of five for each of the six dimensions. The severity level picture cards come in two versions: male and female. A "Your Own Health State" holder. This is a card with six small pieces of Velcro fixed on it.
4. Two sets of 10 printed cards each containing written and pictorial description of the 10 health states to be valued by the participant. These cards have the health state labels in Telugu. One is a free set of cards suitable for hand sorting. This is used for the card sort exercise. The other is pin mounted set, suitable for planting on the cork board VAS platform.
5. A survey schedule to be used by the interviewer to record biodata and other relevant valuer characteristics.
6. Interviewer's observation report (IOR) form to enable the interviewer to record his / her observations, after administering the exercises to each valuer.
7. A specially designed to hold all the pictures cards, forms and the cork board VAS platform, with designated pockets for each item.

Preparations for the survey:

Selection and training of surveyors:

The surveyors for the study were selected from among postgraduate students in Psychology, Social Work and Anthropology. A screening interview was conducted. Those found to be sensitive to rural culture were given preference. Selected surveyor's were trained for a week in the objectives and methods of the survey. Initially, they participated as valuers in a health state valuation workshop, so that each surveyor understood and experienced the nature of valuation process. The training included familiarisation visits to the village and trial

administration of the valuation protocol under direct supervision of faculty who had learnt the protocol earlier. At the end of training period, the surveyor recruits were evaluated for their interviewing skills. Persons found to have some difficulty in communication with interviewees were assigned other roles like camp management and accounts keeping.
A written manual was prepared and given to each surveyor. A copy of the manual is given as Appendix-5.1. An EPI-INFO data entry program was written and tested in advance. Surveyors were trained to use the data entry program. This training took place during the first two days of the survey camp.

Local coordination and logistics:

The village Sarpanch (elected head of Gram Panchayat), local school committee chairman, and other village elders were approached about the survey. We explained the objectives of our study and the survey plan. They approved of the survey and were very supportive of the work. Approval by formal and opinion leaders is important to secure cooperation by individual villagers for the survey. We did explain each interviewee and sought his / her consent for participation. We knew, however, that most villagers would look up to the opinion leaders and would want to know their opinion. Hence, we first approached the formal and informal leaders and explained to them about the study. Officials of the MV Foundation, played a helpful role in introducing the Institute of Health System, this study and its objectives to the village leaders. The village administrative functionaries of the state were also approached. They assisted in locating households. Additional personnel from the village were temporarily hired to escort the surveyors and introduce them to the interviewees in the sample. Camping arrangements for the study team was made. The health sub centre in the village was used as the camping site. The female health assistant posted at the health centre helped in introduction to villagers and in camping arrangements. A work group of personal computers was set up at the camp site to facilitate daily data entry and concurrent review of data entry errors if any. A standby power generator was installed. Arrangements for cooking of meals at the camp site, and such other ancillary arrangements to support the study team at the camp site for the two week study period was made. Our objective of describing these logistical aspects of the study is to emphasise the importance of conforming to the time constraints imposed by the work habits of sampled valuers, who could be contacted during

early morning and late afternoon or evening hours. Thus on site camping, becomes important to get undivided attention of valuers on the health state valuation task.

The survey:

The survey was conducted over a period of 12 days during October 15 - 26, 1999. As most of the valuers were engaged in agricultural labour, we were advised by the village opinion leaders to conduct the surveys early mornings as well as late evenings. The surveyors had to start as early as 6:00 am in the morning for the early morning sessions. Each surveyor took around 1 to 1 1/2 hours to complete one household survey. They were able to complete around 3 surveys in the morning and 3 in the afternoon. There were exceptional situations where the surveyor could not keep up to this schedule. Then they came back to the study camp, where they discussed their experiences. Every alternate day the project coordinator conducted review meetings with all the surveyors in order to keep the surveyors focused as well as deal with any emergent situation.

To estimate test retest reliability, a sub-sample of 110 valuers were selected by simple random sampling at the rate of 55 females and males from respective strata. A resurvey / retest was administered to 10% of the sample who participated in the original survey. After a one week gap, a retest valuation interview was done with these persons. The retest interviewees were administered the same set of indicator conditions originally assigned to them.

A typical valuation session with a villager:

Each surveyor was provided with a local escort recruited from the village. The local escort helped in locating households and introducing the surveyor to the interviewee. The surveyor usually spent some time to acquaint with the valuer and his / her household. Then

s(he) would start filling out the personal information form (Appendix-5.3). English version of the personal information form is given in Appendix-5.2.

Surveyors used a set of Velcro mounted 6D5L graphical description cards appropriate for the interviewee's gender. Surveyor explains each of the six dimensions, one after the other, using the Velcro mounted cards. Within each dimension, the five levels of severity are explained. The valuer is then asked to pick up a picture from set of 5 pictures in the mobility dimension, that describes his / her own mobility status. The valuer then stick this picture to a blank "Your own health today" card. The process is repeated for all six dimensions. Thus the valuer build a "Your own health today" card by picking up appropriate pictures to represent severity levels in each of the six dimensions. At the end of this exercise, the valuer is asked to take a fresh look at the "Your own health state today" card just built by him / her and review the same if necessary. The labels on each picture are read out to the valuer. Once the valuer makes up his / her mind and freezes the "Your own health today" card, a pin mounted version of the same card is made by the surveyor. These two cards are added to the free and pin mounted set of cards to make up the complete set of 11 cards.

The surveyor would present cards in the assigned set, one by one explaining the levels in each of the health states. The valuer is requested to select the health condition, including his / her own health state, that was worst of all the conditions. After selecting one s(he) was then asked to choose the next worst from the remaining 10. This process continued until there were no cards left. If the valuer had difficulty in identifying the next to most worse health state, then (s)he was asked to find the best health state from the remaining cards. Thus in some case the sorting proceeded step wise from worst to best, or in some other cases from best to worst, and in yet other cases in a cyclical fashion worst, best, worst. Yet another way of getting valuers to order the cards was by pair wise comparison. Surveyors, had to resort to one of these methods, depending on the valuer's comfort level. After completion of ordering of all 11 health state cards, the surveyor read out the health states one by one in a sequential order from worst to the best, and sought confirmation by the valuer. Although the sorting exercise proceeded in different manners according to the valuers liking, the rank orders assigned by the interviewee was recorded from best to worst. Thus the best health state received rank order 1 and the worst state got rank 11.

The pin mounted set of cards are sorted according to the card sort rank. The cork board visual scale is presented to the valuers. The valuer is then asked to, one by one, pin the cards showing his / her opinions for these health states as being near or far from “best imaginable health state” and “death” as well as from each other. Surveyors were instructed to look for any qualitative remark or information given by the valuer and record them in a form (Appendix-5.4) provided for the purpose.

After this the surveyor thanked the valuer and gave him / her the small gift as a token of gratitude. Then the surveyor sat for a few minutes to fill out the interviewer's observation report (IOR) form (Appendix-5.5). A valuation session is now considered to be complete.

Interviewer's feedback:

Table-5.6: Frequency distribution of interviewers' feedback on difficulties encountered by the valuer, cooperation and accuracy.

Difficulty encountered by the valuer:					
	None	Some	A lot	Can't say	Total
Description of own health	962	3	0	0	964
Card sorting	803	7	0	0	809
Visual analogue scaling	772	8	0	0	779
Personal information questionnaire	984	1	0	0	984
Respondent's cooperation and perceived accuracy:					
	V. High / Excellent	High / V. Good	Average / Good	Low / Fair	V. Low / Poor
Respondent cooperation	244	375	312	56	18
Accuracy	176	397	378	40	17

Comments by valuers on specific health states:

Brief summary of the comments by valuers for each health state is provided in Appendix-5.6. In Table-5.7 we compare the mean disability weight computed for valuers who made some comments, with the mean of all valuations. For most health states, there is a

difference in the mean disability weights. Mean disability weights from people who made some comments, appear to be generally higher than the mean of all valuations. In a few cases the mean disability weight from those who made comments is lower than the grand mean. It would appear that the valuers who made some comments were aware that they were deviating from the communal norm and hence felt the need to explain the variation. Study of these comments, from multiple studies and over time may help us understand the nature of valuation process in people's mind.

Table 5.7: Comparison of mean disability weights (DWt) from valuers who made some comments and mean of all valuations.

Health State	No of Comments	DWt with comments		DWt from all	
		Mean	SD	Mean	SD
Quadriplegia	74	0.93	0.11	0.90	0.13
Severe heart failure (congestive)	4	0.88	0.14	0.69	0.21
Schizophrenia	4	0.80	0.09	0.61	0.25
Below the knee amputation (two legs)	11	0.79	0.15	0.78	0.15
Blindness	14	0.77	0.18	0.77	0.18
Two broken arms in cast	15	0.72	0.18	0.68	0.19
Urinary incontinence	4	0.71	0.24	0.59	0.22
Peptic Ulcer	6	0.66	0.24	0.55	0.21
Angina	6	0.64	0.24	0.48	0.25
Severe continuous migraine	24	0.64	0.28	0.60	0.22
Mild Tuberculosis with treatment	15	0.59	0.26	0.42	0.23
Unipolar major depression	22	0.59	0.20	0.49	0.24
Infertility	11	0.58	0.22	0.46	0.26
Bronchitis	5	0.57	0.07	0.47	0.23
Severe Hallucinatory Fever	8	0.52	0.26	0.53	0.23
Own Health Today	3	0.49	0.31	0.09	0.13
Mild diabetes, no symptoms	13	0.48	0.24	0.30	0.20
Mild hearing disorder	7	0.47	0.26	0.39	0.23
Continuous moderate back pain	4	0.46	0.12	0.56	0.22
Pain and stiffness in joints	7	0.46	0.13	0.51	0.23
White marks on face	13	0.44	0.27	0.29	0.22
Watery Diarrhoea 5 times a day	15	0.40	0.22	0.36	0.22
Below the knee amputation (one leg)	2	0.28	0.30	0.51	0.21

References:

International Institute for Population Sciences (IIPS), Kulkarni Sumati, Arnold Fred et al. National Family Health Survey 1998-99. Andhra Pradesh. Mumbai (Bombay): International Institute for Population Sciences (IIPS), 2000.

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