

**Measuring generic health outcomes from individual's
perspective: using SF-36 in a rural area of Bangladesh**

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November 2000

**BRAC-ICDDR,B Joint Research Project
Dhaka, Bangladesh**

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1. Introduction

The traditional focus on physiological measurements for assessing health status has undergone a radical change during the past two decades. Health now doesn't mean the mere absence of disease or infirmity, but also includes concepts of functional status, well-being and general health perceptions, commonly referred to as *health-related quality of life*¹. In measuring these generic concepts, insights into individual's experience, i.e., the subjective perception of health is given central importance recently (1). This is because 'the goal of medical care for most patients today is to obtain a more "effective" life and to preserve functioning and well-being (2). To address this, generic health status measures provide global profile of health including well-being, functional status, and social and emotional health (3). These measures are called generic because not only they assess health concepts that represent basic human values but these measures also are independent of age, disease or specific treatment. Individual/client-based generic measures of health outcomes are increasingly being employed for cost-benefit analysis of health services, evaluation of new treatments and technologies and also, monitoring general health of large samples of population sub-groups. Considerations of cost, respondent burden and application in large surveys led to the development of shortened version of valid, reliable tools for this purpose. These provide a concise method for individuals to express their views about health outcomes that are important to them: ability to function in everyday life, to experience a sense of well-being and, to view health status with confidence (4, 5). One such tool is the short form health survey, SF-36, derived from Medical Outcomes Study² and popular for its brevity and comprehensiveness.

The 36 item short form of the Medical Outcomes Study questionnaire (SF-36)

The SF-36 has proven to be useful in measuring population health, estimating disease burden and changes in HRQOL due to treatments, and monitoring outcomes in clinical practice (4). It includes multi-item scales to measure eight most important health concepts commonly included in widely used surveys and have been found to be most useful (4). These are: i) limitations in physical activities because of health problems, (physical functioning, PF; 10 items); ii) role limitations due to physical health problems, (role-physical, RP; 4 items); iii) bodily pain, (BP; 2 items); iv) general health perceptions, (GH; 5 items); v) vitality i.e., energy and fatigue, (VT; 4 items); vi) limitations in social activities, (social functioning, SF; 2 items); vii) role limitations due to emotional problems, (role-emotional, RE; 3 items); viii) and lastly, mental health, assessing both positive and negative emotional states (MH; 5 items). It also includes a one-item measure of self-evaluated change in health status over a one-year period (health transition, HT).

¹ "Health-related quality of life (HQOL) refers to the extent to which one's usual or expected physical, emotional and social well-being are affected by a medical condition or its treatment" (21).

² A study launched in 1983 to look at variations in styles of practice and outcomes for patients with chronic conditions treated in different systems of care and to advance the state-of-the-art of patient-based assessment methods for assessing health outcomes. See AL Stewart & JE Ware (Eds.). *Measuring functioning and well-being: The Medical Outcomes Study approach*. Durham, NC: Duke University Press, 1992.

The SF-36 includes measures of all the three aspects of health included in the World Health Organization (WHO)'s definition of health as a "state of physical, mental, and social well-being and not merely the absence of disease or infirmity" (6). Three of the scales (PF, RP, BP) have substantial validity as measures of physical health status in different dimensions. PF measures limitations in behavioural performance of everyday physical activities, RP measures the extent of disability in everyday activities due to physical problems, and BP focuses specifically on the severity of bodily pain and resulting limitations in activities. Similarly, the three best measures of the mental component of health status are the MH, RE, and SF scales, albeit measuring different dimensions. Again, the SF-36 scales most sensitive to both physical and mental health outcomes are the VT and GH scales, which have moderate empirical validity for these two components. Also in accordance with the WHO definition of health, the SF-36 measures not only negative health states (state of disease or infirmity) but also positive health states (states of well-being). Thus, for the three of the SF-36 scales (MH, VT, GH), a perfect score (100) is attained only when a respondent reports positive health states and evaluates his or her health favourably. The single item health transition (HT) scale is not used to score any of the eight multi-item scales. It is analysed as a categorical variable and provides useful information about actual changes in health status during the year prior to the administration of SF-36. Together, the scales give a global assessment of health status and allows for comparison between study populations. Since its inception, a large volume of study has established its reliability and validity among different populations and in different conditions of health (7, 8).

BRAC, micro-credit and health impact of development interventions

Bangladesh is one of the poorest and most densely populated countries in the developing world, occupying 150th position in UNDP's Human Development Index (9). At least 70 million people live in absolute poverty, and of these, 35 to 50 million constitute the extreme ultra poor consuming <1805 kcal per capita per day (10). One of the distinguishing features of current poverty-alleviation efforts in Bangladesh is to use Micro-credit as "a critical anti-poverty tool for the poorest, especially women" (11). These programmes extend small loans to poor people, mainly women, for income-generating self-employment, thereby allowing them to achieve a better quality of life.

Founded in 1972, BRAC is a large indigenous non-governmental organization involved in rural poverty alleviation and empowerment of the poor through the use of micro-credit. It works through a comprehensive development programme targeting the poorer section of the population with special emphasis on improving their health and socioeconomic condition through group formation, skill training, and collateral free loans for income-generating activities (12). Health interventions in the form of Essential Health Care includes promotion of safe water and sanitation, health and nutrition education, as well as immunization, family planning and basic curative services. Community health workers selected from among the group members and trained in preventive health care, deliver these services by means of regular household visits. Preventive health and nutrition education is mainly disseminated through a 'health forum'

held monthly in each VO and reinforced during household visits. Besides, the children of the poor households gain health knowledge through non-formal primary schools run by BRAC as well (13). The increase in informational and material resources for preventive and therapeutic health care (cash income for health expenses, health and nutrition awareness, latrine construction, improved per capita calorie consumption etc.) arising through participation in BRAC's development interventions would benefit the overall health of the household members through a web of intersecting pathways, it is assumed (14). A number of impact studies found positive programme benefits to the participants, including health (15, 16, 17). However, no assessment so far has been done of health outcomes that allow insight into patient/individual's experience, placing them at the centre.

This study explores the impact on the functioning and well-being of a group of people receiving BRAC's development interventions, by administering a widely used generic health assessment tool (SF-36). This study will provide a new dimension in measuring the health impact of BRAC programmes from the perspectives of the client and also, the feasibility of using the instrument in Bangladeshi context.

2. Materials and methods

BRAC-ICDDR, B Joint Research Project at Matlab

This study was conducted under the BRAC-ICDDR, B Joint Research Project at Matlab during November 1999. The Project was initiated in 1992 to explore the linkage between socioeconomic development and improved health and well-being, especially the processes and mechanisms by which such changes are brought about through a "natural experiment" design. The historical and prospective demographic and health data collected by Demographic Surveillance System (DSS) of ICDDR, B on the population of Matlab Thana facilitated the process. So far three surveys were done in 1992 (baseline in 60 DSS villages), 1995 (an in-depth study in 14 of the 60 base-line villages), and 1999 (baseline villages revisited). The details of the project and the key findings are described elsewhere (18).

Study sample, data collection and analysis

The respondents for this study were drawn from a sub-sample of the baseline villages revisited during August-November 1999. All of these 10 sampled villages were having BRAC interventions. A listing of households was done to delineate the population frame for sampling different categories of households. While preparing the list, households were categorized as BRAC-eligible and non-eligible depending on their land ownership (cut-off: 50 decimals including homestead) and sale of manual labour (at least 100 days a year for survival). Households receiving credit and other inputs are termed BRAC member households for this analysis. From the list of "eligible" households, 500 each of member and non-member households were drawn randomly for inclusion in the study. For comparison, all non-eligible households

surveyed in these villages (25% of these households) in 1999 were included in the study. These were comparatively better off socioeconomically, and included the rural elite as well.

In each household, the SF-36 questionnaire was administered to the currently married women and their husbands present at the time of survey by trained interviewers, after informed consent was obtained. One couple from each household was interviewed. The couples were interviewed on separate occasions and each interview lasted about 15 minutes. Ultimately, the sample yielded the following distribution of respondents:

Table 1: Distribution of respondents by gender, BRAC eligibility and membership status of the Households %

Respondents	BRAC member	BRAC eligible non-member	BRAC non-eligible	All
Male	48.8	49.1	49.3	49.0
Female	51.2	50.9	50.7	51.0
Total (N)	463	391	150	1004

The 1999 repeat survey questionnaire gathered general demographic and socioeconomic data from the household head or any knowledgeable adult household member present at the time of survey. Of pertinence to this analysis are data on age, sex (male or female), literacy (the ability to read and write), occupation, land-holdings and perceived economic solvency status of the households. Household's occupation is defined as the activity in which the household head spends the major part of the working day, and is categorised as labour selling or non-labour selling. Labour selling households tend to be of lower socioeconomic status given their dependence on variable seasonal employment.

Translation, scoring and interpretation of the SF-36

BRAC Research Division did the Bengali translation and adaptation of the SF-36 standard version with assistance from the "Health Assessment Lab" at the Health Institute, New England Medical Center (19). A set protocol was used in the process e.g., forward and backward translation, formal evaluation of how well the underlying health concepts have been reproduced, field-testing of the translated form for reliability and validity etc. The reliability of different scales in Bangla as measured by Cronbach's alpha is shown in Table 2.

Table 2: Reliability analysis of 8 different composite scales

Scale	Items	Cronbach's α
PF (Physical Functioning)	PF1 to PF10	0.85
RP (Role Physical)	RP1 + RP2 + RP3 + RP4	0.96
BP (Bodily Pain)	BP1 + BP2	0.92
GH (General Health)	GH1 + GH2 + GH3 + GH4 + GH5	0.78
VT (Vitality)	VT1 + VT2 + VT3 + VT4	0.59
SF (Social Functioning)	SF1 + SF2	0.73
RE (Role Emotional)	RE1 + RE2 + RE3	0.94
MH (Mental Health)	MH1 + MH2 + MH3 + MH4 + MH5	0.81

The survey's standardized scoring system yields a profile of eight health scores and a self-evaluated change in health status as described above. The SF-36 items and scales are scored so that a high score indicates better health state (4). Five scales (PF, RP, BP, SF and RE) define health status as the absence of limitation or disability. For these scales, the highest possible score of 100 is achieved when no limitations or disabilities are observed. Three of the scales (GH, VT and MH) are "bipolar" in nature and measure a much wider range of negative and positive health states. For these scales, a score in the up mid-range (e.g., 72 for GH, 61 for VT and 75 for MH in US general population) is earned when respondents report no limitations or disability, while a score of 100 is earned only when respondents report positive states and evaluate their health favourably.

3. Results

As is evident from Table 2, the scale VT failed to pass the cut-off point for reliability (Cronbach's Alpha coefficient 0.70). Also, Item Internal consistency test was not satisfactory (satisfactory when item-scale correlation is 0.40 in 90% or more instances) for two items of the VT scale, VT2 and VT4. Therefore, this scale was dropped from subsequent analysis.

Table 3 presents the SF-36 scores of the study sample by BRAC membership status of households and sex of the respondents and also, the US average for adults at the bottom. In the three most valid measures of physical health e.g., PF, RP, and BP, the respondents from BRAC households scored a little better than those from eligible non-member households, irrespective of sex. A male bias in scores was observed with the exception of RP scale, meaning that limitation in work or other daily activities due to physical conditions was comparatively less in case of females. Again, respondents from non-eligible households were in a better physical health compared to those from BRAC households, except physical functioning (PF). This trend was pronounced in case of males, but not females. In short, it can be said that the perceived physical health of BRAC respondents was better than comparable non-member respondents, but worse than non-eligible respondents mostly, with disadvantaged status displayed by the females. It is interesting to note that except BP, the other two scales fared much lower than average US norms for the scales.

In the most valid measure of mental health status, the MH scale, respondents from all categories evaluated their condition negatively (scoring less than 70 in the bi-polar MH scale). The scores of BRAC respondents were better than those from eligible non-member households, and more close to non-eligibles. Again, males scored better than the females in eligible respondents; this difference was not found for the non-eligible respondents. Anyway, the scores were much lower than the US norms and the scores of the female respondents were on the verge of indicating depression (e.g., a score of 52 or lower is a cut-off for possible depression in the US). On the other hand, not much difference was found among

different categories of respondents in case of both the RE and SF scales; females achieved higher score than their male counterparts uniformly, meaning that they were less distracted than males in performing their daily activities or social obligations by physical or emotional problems. To note, the scores in these two scales were comparable to those of the US norms.

Table 3: SF-36 scores of study sample by BRAC membership status of the households and sex (mean±sd)

	PF	RP	BP	GH	SF	RE	MH
BRAC member HHs							
Male (n=226)	78.18 ± 20.57	50.88 ± 46.47	74.40 ± 26.93	48.95 ± 24.91	86.89 ± 21.85	65.63 ± 45.58	62.26 ± 23.06
Female (n=237)	71.85 ± 20.01	59.17 ± 46.23	73.76 ± 25.98	45.39 ± 24.38	88.02 ± 20.48	70.18 ± 43.84	57.65 ± 22.69
All (n=463)	74.94 ± 20.51	55.12 ± 46.48	74.07 ± 26.42	47.12 ± 24.68	87.47 ± 20.50	67.96 ± 44.71	59.90 ± 22.96
Eligible non-member HHs							
Male (n=192)	76.66 ± 19.02	46.35 ± 47.09	71.09 ± 27.93	46.65 ± 24.42	85.15 ± 20.33	71.35 ± 44.81	58.37 ± 22.70
Female (n=199)	69.47 ± 20.54	53.39 ± 47.38	70.61 ± 29.44	40.55 ± 23.14	87.75 ± 19.17	73.36 ± 42.24	54.97 ± 22.47
All (n=391)	73.00 ± 20.11	49.93 ± 47.31	70.84 ± 28.67	43.54 ± 23.94	86.47 ± 19.76	72.37 ± 43.47	56.64 ± 22.62
BRAC non-eligible HHs							
Male (n=74)	72.77 ± 20.70	56.08 ± 47.32	80.18 ± 24.34	49.24 ± 22.76	83.44 ± 23.32	66.21 ± 43.96	61.24 ± 20.72
Female (n=76)	70.78 ± 19.04	60.52 ± 47.30	72.89 ± 27.91	44.51 ± 22.36	89.03 ± 18.33	78.07 ± 40.20	61.21 ± 22.27
All (n=150)	71.76 ± 19.84	58.33 ± 47.20	76.49 ± 26.38	47.35 ± 22.50	86.41 ± 21.08	72.22 ± 42.37	61.22 ± 21.45
US Norms for Adults							
	84.5	81.2	75.5	72.2	83.6	81.3	74.8

Note: Shaded variables are bipolar i.e., a score of 100 is earned only when respondents report positive states and evaluate their health favourably.

The respondents' self-evaluation about general health (GH) was uniformly unfavourable: the scoring was much below than the US norm of 72 for this bi-polar scale, the females more so than the males and the respondents from eligible non-member households more so than BRAC member or non-eligible households.

Next, we tried to explore the differentiation in SF-36 scores as a result of variation in various individual and household level factors such as age, education, household's land-holdings etc. Table 4 presents SF-36 scores according to the respondents' age and BRAC household status. The single most important trend seen consistently across the three groups was the deterioration in both the physical (PF, RP, BP) and mental (SF, RE, MH) health scales with ageing. Importantly, in the MH scale, the respondents sliding scores reached possible cut-offs for depression, especially in case of poor BRAC-eligible households. Again, it is not surprising to find that the scores on GH decreased continuously with age across all

categories. In almost all the SF-36 scales, the BRAC respondents achieved better score than their non-member counterparts, with few exceptions. A US norm for a comparable age group is presented at the bottom of the table for comparison (with 50). The scores of Bodily Pain and Social Functioning scales (BP and SF respectively) were comparable to the US norms for a comparable age group.

Table 4: SF-36 scores by BRAC membership status of households and age (mean \pm sd)

	PF	RP	BP	GH	SF	RE	MH
BRAC member HHs							
Age (yrs)							
≤ 30 (n=96)	80.31 \pm 18.97	63.54 \pm 45.14	79.28 \pm 25.06	53.86 \pm 24.76	90.49 \pm 16.69	73.95 \pm 39.94	64.0 \pm 23.57
31-49 (n=315)	75.07 \pm 19.31	54.76 \pm 46.07	74.35 \pm 25.36	47.01 \pm 23.92	87.85 \pm 20.03	67.3 \pm 44.98	60.1 \pm 22.2
50+ (n=52)	64.23 \pm 25.97	41.82 \pm 48.94	62.78 \pm 31.85	35.38 \pm 25.03	79.56 \pm 27.11	60.89 \pm 50.58	51.15 \pm 24.47
Eligible non-member HHs							
Age (yrs)							
≤ 30 (n=76)	78.09 \pm 17.98	52.96 \pm 47.42	77.65 \pm 26.50	48.96 \pm 22.2	92.92 \pm 16.62	82.01 \pm 36.69	64.73 \pm 21.32
31-49 (n=271)	72.82 \pm 19.69	52.02 \pm 47.34	70.37 \pm 28.24	43.16 \pm 23.92	85.88 \pm 19.72	71.7 \pm 44.29	55.26 \pm 22.65
50+ (n=44)	65.34 \pm 23.73	31.81 \pm 43.92	62.02 \pm 32.56	36.56 \pm 25.39	78.97 \pm 22.02	59.84 \pm 46.35	51.18 \pm 21.61
BRAC non-eligible HHs							
Age (yrs)							
≤ 30 (n=27)	78.88 \pm 19.28	64.81 \pm 46.12	74.66 \pm 30.56	55.96 \pm 21.76	95.83 \pm 9.8	93.82 \pm 20.74	67.85 \pm 22.2
31-49 (n=93)	71.55 \pm 18.34	56.98 \pm 47.4	75.66 \pm 26.4	45.76 \pm 21.64	86.02 \pm 21.24	66.66 \pm 45.04	59.78 \pm 19.8
≥ 50 (n=30)	66.0 \pm 23.24	56.66 \pm 48.66	80.7 \pm 22.41	44.53 \pm 24.6	79.16 \pm 25.07	70.0 \pm 43.19	59.73 \pm 25.07
US Norms							
Ages 55-64	76.24	73.66	67.51	64.62	81.37	80.26	75.01

The SF-36 scores in terms of respondents' literacy (i.e., ability to read and write) and BRAC household status is presented in Table 5. The beneficial effect of education was manifested by marginally higher scores achieved by the literate respondents compared to the illiterates, in almost all the scales examined.

In Table 6, the SF-36 scores of the respondents by households' land-holding status are shown. In some of the scales such as RP, BP, SF and MH, the scores of BRAC respondents were associated with better land-holdings status of the households. However, better land-holdings status could not deter self-evaluation of general health (GH) negatively. On the other hand, quite surprisingly, this trend was almost completely reversed in case of the non-BRAC respondents, especially non-eligibles. In short, it can be said that health was not always perceived favourably with the increase in households' land-holdings, a proxy for affluence

in rural context. However, health was positively associated with perceived affluence of the households, as we will see next.

Table 5: SF-36 scores by BRAC membership status of households and literacy (mean \pm sd)

	PF	RP	BP	GH	SF	RE	MH
BRAC member HHs							
Literacy*							
Illiterate (n=95)	75.05 \pm 19.99	48.94 \pm 47.39	71.95 \pm 27.06	47.75 \pm 26.38	84.60 \pm 22.73	64.21 \pm 44.62	58.65 \pm 24.23
Literate (n=368)	74.91 \pm 20.67	56.72 \pm 48.18	74.62 \pm 26.27	46.96 \pm 24.25	88.21 \pm 19.85	68.93 \pm 44.74	60.23 \pm 22.65
Eligible non-member HHs							
Literacy							
Illiterate (n=127)	70.15 \pm 21.55	46.25 \pm 48.18	68.65 \pm 27.57	40.33 \pm 24.13	86.12 \pm 19.04	71.12 \pm 43.91	53.51 \pm 22.52
Literate (n=264)	74.37 \pm 19.27	51.70 \pm 46.87	71.9 \pm 29.18	45.09 \pm 23.74	86.64 \pm 20.14	72.97 \pm 43.33	58.15 \pm 22.55
BRAC non-eligible HHs							
Literacy							
Illiterate (n=17)	69.11 \pm 16.69	50.0 \pm 50.0	73.05 \pm 20.43	41.70 \pm 20.69	80.88 \pm 20.30	66.66 \pm 44.09	59.52 \pm 20.04
Literate (n=133)	72.10 \pm 20.23	59.39 \pm 46.93	79.93 \pm 27.07	48.07 \pm 22.69	87.12 \pm 21.14	72.93 \pm 42.27	61.44 \pm 21.68

*Ability to read and write

Table 6: SF-36 scores by BRAC membership status of households and land-holdings (mean \pm sd)

	PF	RP	BP	GH	SF	RE	MH
BRAC member HHs							
Land holdings (decimals)							
0-50 (n=419)	74.86 \pm 20.81	53.75 \pm 46.68	73.73 \pm 26.77	47.07 \pm 24.48	87.2 \pm 20.76	68.25 \pm 44.74	59.36 \pm 23.33
51+ (n=44)	75.68 \pm 17.63	68.18 \pm 42.91	77.36 \pm 22.87	47.65 \pm 26.74	90.05 \pm 17.79	65.15 \pm 44.86	65.0 \pm 18.66
Eligible non-member HHs							
Land holdings (decimals)							
0-50 (n=365)	73.19 \pm 20.01	50.82 \pm 47.27	71.23 \pm 28.66	43.46 \pm 23.91	86.57 \pm 19.88	72.87 \pm 43.26	56.49 \pm 22.86
51+ (n=26)	70.38 \pm 21.76	37.5 \pm 47.03	65.42 \pm 28.92	44.69 \pm 24.86	85.09 \pm 18.37	65.38 \pm 46.64	58.76 \pm 19.15
BRAC non-eligible HHs							
Land holdings (decimals)							
0-50 (n=20)	73.75 \pm 17.9	70.0 \pm 47.01	86.2 \pm 28.11	51.45 \pm 24.79	81.25 \pm 25.48	85.0 \pm 33.28	65.0 \pm 20.01
51+ (n=130)	71.46 \pm 20.15	56.53 \pm 47.16	75.0 \pm 25.86	46.72 \pm 22.16	87.21 \pm 20.32	70.25 \pm 43.38	60.64 \pm 21.68

Table 7 presents SF-36 scores by self-perceived economic solvency of the households in the past year. Annual economic solvency was stratified into deficit and non-deficit households, as perceived by the household head. Respondents from better-off households (non-deficit) achieved better scores, though sometimes marginally, in general. It can be said that affluence had a positive influence on perceived health status mostly, with few exceptions.

Table 7: SF-36 scores by BRAC membership and perceived economic solvency of households (mean \pm sd)

	PF	RP	BP	GH	SF	RE	MH
BRAC member HHs							
Solvency status*							
Deficit (n=190)	73.5 \pm 21.75	56.31 \pm 46.57	71.72 \pm 29.33	44.32 \pm 26.22	85.65 \pm 22.34	66.49 \pm 45.29	58.56 \pm 24.06
No deficit (n=273)	75.95 \pm 19.58	54.3 \pm 46.49	75.71 \pm 24.11	49.08 \pm 23.39	88.73 \pm 19.05	68.98 \pm 44.35	60.83 \pm 22.17
Eligible non-member HHs							
Solvency status							
Deficit (n=160)	70.65 \pm 20.69	44.06 \pm 46.79	63.43 \pm 30.35	39.29 \pm 24.18	81.87 \pm 22.59	65.0 \pm 47.25	50.9 \pm 23.77
No deficit (n=231)	74.63 \pm 19.58	54.0 \pm 47.35	75.98 \pm 26.32	46.49 \pm 23.38	89.66 \pm 16.87	77.48 \pm 39.96	60.62 \pm 20.93
BRAC non-eligible HHs							
Solvency status							
Deficit (n=21)	67.14 \pm 21.24	59.52 \pm 49.03	81.19 \pm 23.28	51.0 \pm 23.99	84.52 \pm 20.88	71.42 \pm 43.82	57.33 \pm 21.44
No deficit (n=129)	72.51 \pm 19.58	58.13 \pm 47.09	75.28 \pm 26.85	46.75 \pm 22.29	86.72 \pm 21.18	72.35 \pm 42.31	61.86 \pm 21.47

* Deficit (always or occasionally); No deficit (break-even or surplus)

Lastly, we analysed the single item self-reported health transition (HT) scale, which is hypothesized to reflect true changes in health during the recall period. The results are presented in (Table 8). Expectedly, the BRAC respondents reported better levels of current health ('much better' and 'somewhat better') compared to their non-member counterparts, BRAC eligible or not. It is interesting to note that BRAC women self-evaluated their health better than men, which was reversed for the other two groups. At the extreme, proportionately more women self-evaluated their current health worse than what was one year ago, across the categories.

4. Discussion

Over the last two decades, perception of the individual in assessing health status outcomes has gained more and more importance. However, long measures of perceived health status used in research settings is not practical for use in large population surveys. Lessons learned over the years show that, on average, 'the patient (or individual) point of view is valid' and also, 'even very brief measures can be used to measure differences in health across groups or patients' (20). This study used a standardized Bangla

translation of such a tool, namely SF-36, for comparing health status of different population groups in the context of rural Bangladesh and is first of its kind to study perceived health status of the respondents.

Table 8: Self-reported health transition over last one year by BRAC membership and sex (%)

Reported Transition	BRAC member HHs			Eligible non-member HHs			Non-eligible HHs		
	Male	Female	All	Male	Female	All	Male	Female	All
Much better	5.3	5.5	5.4	3.6	2.5	3.1	4.1	9.2	6.7
Somewhat better	17.3	19.8	18.6	17.7	16.6	17.1	14.9	10.5	12.7
About the same	22.6	27.0	24.8	27.6	27.6	27.6	28.4	30.3	29.3
Somewhat worse	35.4	26.2	30.7	28.1	29.1	28.6	39.2	22.4	30.7
Much worse	19.5	21.5	20.5	22.9	24.1	23.5	13.5	27.6	20.7
n	226	237	463	192	199	391	74	76	150

From the findings, it is apparent that the respondents from BRAC households fared better, albeit sometimes marginally, than those from the comparable non-member group in most of the domains studied e.g., functional status, well-being, social and emotional health etc., and were occasionally comparable with respondents from relatively better-off households. These findings suggest that member households have benefited perceptibly from BRAC's income-generating inputs like credit, skill development training, etc through improved household economic condition. Supporting this latter hypothesis are empirical data reported elsewhere that indicate a significant (and positive) difference in land and livestock holdings, productive assets, savings, and monthly food-expenditure when comparing BRAC member households and their poor non-member counterparts (22). It might be speculated, therefore, that the increase in informational and material resources for preventive and therapeutic health care (cash income for health expenditure on basic curative care, latrine construction, tube-well installation, improved nutrition etc.) arising through participation in BRAC's development activities have benefited the overall health of household members. This is also reflected in the findings that children of mothers who joined BRAC had a higher survival probability than the comparable non-members ($p=0.0002$) and statistically similar to non-eligible mothers ($p=0.97$) (18). However, affluent non-member respondents achieved higher scores than BRAC respondents mostly, showing the importance of SES in achieving and perceiving better health. Also, compared with the norms for US adult population, even the scores achieved by respondents from better-off households were found to be uniformly worse.

The uniform negative evaluation of mental health status by the respondents, especially poor respondents from BRAC-eligible households, is interesting. This is plausible, given the linkage between emotional stress resulting from poverty and the development and/or maintenance of common mental health

problems such as anxiety and depression (23, 24, 25, 26). Another explanation in case of the BRAC respondents may be that development programs concerned with material improvement of participants ignore the impact of subjective factors like discrepancy between expectation and achievement, and anxieties and tensions resulting from newly adopted non-traditional roles by participant women on their emotional and physical well-being (27). It can be said that, to optimize the beneficial effects of micro-credit on the lives of the poor, issues related to creation of an enabling environment free of anxiety, tension and violence, need serious re-thinking.

The gradual deterioration in mental health with age found in the study draws our attention to the poor state of elderly in this society (28). The majority of older people in Bangladesh cannot meet their most basic needs due to loss of income and physical disability. Families remain the primary source of support for older people but it is undermined by poverty. Lack of formal social security at old age, loss of income sources, exclusion of older people from services and support by NGO and Government, and social factors like deteriorating respect and empathy for the aged etc. marginalize the elderly population in contemporary Bangladeshi society. These factors combine together to precipitate enough stress to affect mental health. Of interest in the analysis is also the fact that almost all respondents, irrespective of socioeconomic or physical health status, self-evaluated their general health condition negatively. One explanation may be that evaluating one's own health negatively, even if s/he is healthy, is a cultural phenomenon in this population. Further in-depth study is needed to explore this issue.

The persistence of gender differentials in perceived health status, both physical and mental, among study respondents including BRAC respondents, confirms the complexity and strength of socioeconomic, religious and legal forces that prevent women from perceiving their ill health sufficiently important to warrant recognition and treatment. Thus, concerted efforts are required to increase the sensitivity of programmes to equity considerations. In this respect, community awareness about the immediate and future benefits of improving women's health should be raised, as also, the cultural and financial accessibility of health care for women. It is interesting to note that, despite poor health perception, women did not refrain from delivering their role obligations to the society. This probably is a reflection of the demand that power of patriarchy places on the vulnerable women of rural Bangladeshi society.

Standardized measures of physical and mental functioning and well-being, social and role disability, and general health perceptions are necessary for comprehensive evaluation and monitoring of the health of the general population and evaluate health care policies and interventions. From the above discussion, it is evident that SF-36 can serve the purpose quite efficiently and be a useful tool for health status outcome assessment in the context of rural Bangladesh.

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