

Measuring Perceived Health Outcomes in Non-western Culture: Does SF-36 Have a Place?

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ABSTRACT

This study explored the usefulness of a generic health assessment tool SF-36 in measuring perceived health outcomes in a developing-country setting. The adapted Bangla version was administered in 10 villages of Matlab sub-district in Bangladesh during second half of 1999. Respondents included currently-married males and females selected randomly from households stratified according to their association with women-focused development interventions of BRAC. Findings revealed that the respondents from BRAC households perceived their health status marginally better than the poor non-member group in most domains studied, sometimes significantly so, e.g. general and mental health ($p < 0.05$). The respondents from BRAC reported better 'current health' than their non-member counterparts. The gender difference in assessment of health status was noted among the groups. Age, education, and poverty were important determinants of perceived health status. SF-36 proved to be a useful tool for self-assessment of health status and group comparison when properly modified for cross-cultural adaptation.

Key words: Health status; Health; Quality of life; Health status indicators; SF-36; Bangladesh

INTRODUCTION

Generic measures of health status provide global profile of health, including well-being, functional status, and social and emotional health compared to traditional focus on physiological measurements for assessing health (1). These concepts are commonly termed health-related quality of life (HRQOL), defined as "the extent to which one's usual or expected physical, emotional and social well-being are affected by a medical condition or its treatment" (2). These measures are called generic because they not only assess health concepts that represent basic human values but these measures are also independent of age, disease, or specific treatment. In measuring these

generic concepts, insights into experience of individuals, i.e. the subjective perception of health, is given central importance (3). 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" (4). To address this, 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 for 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 versions 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 (5,6). One such tool is the 36-item short-form health survey (SF-36) derived from the Medical Outcomes Study and popular for its brevity and comprehensiveness (7).

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Micro-credit, BRAC and health impact of development interventions

Founded in 1972, BRAC is a large indigenous non-governmental organization in Bangladesh (8). At least 70 million people live in absolute poverty, and of them, 35-50 million constitute the ultra-poor consuming <1,805 kcal per capita per day. BRAC complements poverty-alleviation efforts of the Government through the use of micro-credit, "a critical anti-poverty tool for the poorest, especially women" (9). It works through a comprehensive development programme targeting the poorer section of the population with special emphasis on improving their health and socioeconomic condition (10). It is assumed that the increase in informational and material resources for preventive and therapeutic healthcare arising through participation in development interventions of BRAC would benefit the overall health of the household members through a web of intersecting pathways (11). A number of impact studies found positive programme benefits to the participants, including health (12,13). However, no assessment so far has been done of health outcomes that allow insights into patient/individual's experience, placing them at the centre. With this background, the current study attempted to elicit individual perspective on health outcomes from a group of people receiving development inputs of BRAC and to compare with those not receiving such inputs, by administering the SF-36 generic health-assessment tool.

MATERIALS AND METHODS

Study sample, data collection and analysis

This study was conducted under the BRAC-ICDDR,B Joint Research Project at Matlab launched in 1992 to explore the linkage between socioeconomic development and changes in health and well-being through a 'natural experiment' design. ICDDR,B, an international centre for health and population research, operates a Demographic Surveillance System (DSS) in Matlab since the 1960s—now known as Health and Demographic Surveillance System (HDSS). A baseline survey in 1992 (sampling 12,000 households from 60 villages of Matlab DSS area) was succeeded by a post-intervention follow-up survey in 1999. The details of the project and the key findings are described elsewhere (14).

Data for the present study originated from a sub-sample of 10 villages selected by simple random

sampling (SRS) from the 60 villages having BRAC interventions. Households in the villages were categorized as poor (and therefore eligible to receive BRAC inputs) and non-poor depending on whether they possessed less than 0.5 acre of land and rely on labour-selling activities for more than 100 days per year or not. From the list of 'poor' households in the 10 villages, 250 each of member (receiving BRAC credit and other inputs) and non-member households were drawn randomly for inclusion in the study. For comparison, all non-poor households surveyed in these villages, i.e. 82 households, were included. The latter comprised 25% of all non-poor households selected randomly for survey in these villages in 1999. Data were collected from households having a currently-married couple (243, 239, and 79 from the BRAC, poor non-BRAC, and non-poor households respectively), and the SF-36 questionnaire was administered to respondents (either both husband and wife or one of them) present on the day of survey. To maximize response, three repeated visits at intervals of several days were made when the respondent(s) could not be found at the first visit. However, for a variety of reasons (non-availability due to seasonal migration in search of jobs or preoccupation with farming activities in the case of males, visiting natal homes or preoccupation with household chores in the case of females, unwillingness to participate, shifting or dissolution of households, etc.), all targeted households and respondents could not be interviewed. Thus, the final response rates were 96%, 82%, and 95% for the BRAC, poor non-BRAC, and non-poor households respectively. The husband and the wife were interviewed separately after informed consent was obtained. Each interview lasted for about 20 minutes. Besides, a second set of questionnaire gathered relevant information on age, literacy (ability to read and write), occupation, land-holdings, and perceived economic solvency status of the households. Occupation of household is defined as the activity in which the household head spends the major part of the working day and is categorized as labour-selling or non-labour-selling. Labour-selling households tend to be of lower socioeconomic status, given their dependence on variable seasonal employment.

Adaptation, scoring, and interpretation of SF-36

The Research and Evaluation Division of BRAC did the Bangla translation and cross-cultural adaptation of the SF-36 standard version (in English) with assistance from the "Health Assessment Lab" at the Health Institute, New England Medical Center (15). A set protocol was used for the purpose, 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, validity, etc. The brief description of the scales and the reliability of different scales in Bangla as measured by Cronbach's alpha are shown in Table 1.

positive states and evaluate their health favourably. The single item—health transition scale—is not used for scoring any of the eight multi-item scales. It is analyzed as a categorical variable which provides useful information about actual changes in health status during

Table 1. Brief description and reliability analysis of 8 different composite scales

Scale	Description	Cronbach's α
Physical functioning	Limitations in physical activity because of health problems; 10 items	0.85
Role-physical	Role limitations due to physical health problems; 4 items	0.96
Bodily pain	Bodily pain; 2 items	0.92
General health	General health perceptions; 5 items	0.78
Vitality	Perceptions of energy and fatigue; 4 items	0.59
Social functioning	Limitations in social activities; 2 items	0.73
Role-emotional	Role limitations due to emotional problems; 3 items	0.94
Mental health	Positive and negative emotional states; 5 items	0.81

The standardized scoring system in the survey yielded a profile of eight health scores as shown in Table 1. The SF-36 items and scales are scored so that a high score indicates better health state (5). Five scales [physical functioning (PF), role-physical (RP), bodily pain (BP), social functioning (SF), and role-emotional (RE)] define health status as the absence of limitation or disability and the highest possible score of 100 is achieved when no limitations or disabilities are perceived. Again, in accordance with the WHO definition of health, 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 [mental health (MH), vitality (VT), general health (GH)], 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 reported

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 (16,17).

Comparison with US norms

In this study, for understanding the significance of the scores, comparison was made with the norms for the US population as there were no such data available for the Bangladeshi population.

RESULTS

Table 1 shows that the scale VT failed to pass the cut-off point for reliability (Cronbach's alpha coefficient ≥ 0.70). Therefore, this scale was dropped from subsequent analysis. Table 2 presents the SF-36 scores

Table 2. SF-36 scores of study participants by BRAC membership status of households (mean $\pm$ SD)

Scale	BRAC member households	Poor non-member households	Non-poor non-member households	p value		US norm for adults
	(n=463)	(n=391)	(n=150)			
	a	b	c	a vs b	a vs c	d
Physical functioning	74.94 $\pm$ 20.51	73.00 $\pm$ 20.11	71.76 $\pm$ 19.84	0.165	0.097	84.5
Role-physical	55.12 $\pm$ 46.48	49.93 $\pm$ 47.31	58.33 $\pm$ 47.20	0.108	0.465	81.2
Bodily pain	74.07 $\pm$ 26.42	70.84 $\pm$ 28.67	76.49 $\pm$ 26.38	0.090	0.330	75.5
General health	47.12 $\pm$ 24.68	43.54 $\pm$ 23.94	47.35 $\pm$ 22.50	0.032	0.918	72.2
Social functioning	87.47 $\pm$ 20.50	86.47 $\pm$ 19.76	86.41 $\pm$ 21.08	0.472	0.586	83.6
Role-emotional	67.96 $\pm$ 44.71	72.37 $\pm$ 43.47	72.22 $\pm$ 42.37	0.146	0.305	81.3
Mental health	59.90 $\pm$ 22.96	56.64 $\pm$ 22.62	61.22 $\pm$ 21.45	0.038	0.534	74.8

of the study sample by BRAC membership status of households and also the US norms for adults on the extreme right column. The table also shows that there was not any significant difference in perceived physical health (measured by PF, RP and BP scales) among the three groups, although the BRAC respondents scored marginally better than the comparable non-member respondents. The scores achieved by the respondents were uniformly lower, sometimes miserably so (e.g. MH scale) with the exception of BP and SF scales, than the standard norms for US adults. However, the respondents from BRAC performed significantly better than those from poor non-member households in a few of the scales, such as GH and MH ($p < 0.05$).

Table 3 presents the SF-36 scores disaggregated by sex. Apparently, RP and SF scores show that limitation in work or other daily activities due to physical or

Next, we tried to explore the effect of age on the achievement of SF-36 scores (Table 4). The single most important trend seen consistently across the three groups was the deterioration in both physical (PF, RP, BP) and mental (SF, RE, MH) health scales with ageing. Importantly, in the MH scale, the sliding scores of the respondents reached possible cut-offs for depression, especially in the case of poor households. Again, it is not surprising to find that the scores on GH decreased continuously with age across all categories. In most scales, the respondents from BRAC achieved better score than their non-member counterparts, sometimes significantly so, e.g. GH ($p = 0.05$) and MH ($p < 0.05$) scales in the 31-49-year age group.

Table 5 presents the SF-36 scores by literacy status, i.e. ability to read and write, of the respondents. The beneficial effect of education on self-assessment of

Table 3. SF-36 scores of study participants by BRAC membership status of households and sex (mean $\pm$ SD)

Scale	BRAC member households	Poor non-member households	Non-poor non-member households	p value	
	a	b	c	a vs b	a vs c
Female					
	(n=237)	(n=199)	(n=76)		
Physical functioning	71.85 $\pm$ 20.01	69.47 $\pm$ 20.54	70.78 $\pm$ 19.04	0.222	0.683
Role-physical	59.17 $\pm$ 46.23	53.39 $\pm$ 47.38	60.52 $\pm$ 47.30	0.200	0.826
Bodily pain	73.76 $\pm$ 25.98	70.61 $\pm$ 29.44	72.89 $\pm$ 27.91	0.241	0.803
General health	45.39 $\pm$ 24.38	40.55 $\pm$ 23.14	45.51 $\pm$ 22.23	0.035	0.968
Social functioning	88.02 $\pm$ 20.18	87.75 $\pm$ 19.17	89.30 $\pm$ 18.33	0.884	0.623
Role-emotional	70.18 $\pm$ 43.84	73.36 $\pm$ 42.24	78.07 $\pm$ 40.20	0.443	0.148
Mental health	57.65 $\pm$ 22.69	54.97 $\pm$ 22.47	61.21 $\pm$ 22.27	0.218	0.233
Male					
	(n=226)	(n=192)	(n=74)		
Physical functioning	78.18 $\pm$ 20.57	76.66 $\pm$ 19.02	72.77 $\pm$ 20.70	0.437	0.051
Role-physical	50.88 $\pm$ 46.47	46.35 $\pm$ 47.09	56.08 $\pm$ 47.32	0.324	0.407
Bodily pain	74.40 $\pm$ 26.93	71.09 $\pm$ 27.93	80.18 $\pm$ 24.34	0.219	0.102
General health	48.95 $\pm$ 24.91	46.65 $\pm$ 24.42	49.24 $\pm$ 22.76	0.344	0.929
Social functioning	86.89 $\pm$ 20.85	85.15 $\pm$ 20.33	83.44 $\pm$ 23.32	0.392	0.232
Role-emotional	65.63 $\pm$ 45.48	71.35 $\pm$ 44.81	66.21 $\pm$ 43.96	0.198	0.923
Mental health	62.26 $\pm$ 23.06	58.37 $\pm$ 22.70	61.24 $\pm$ 20.72	0.084	0.735

emotional conditions was comparatively less among the females, meaning that they were less distracted than the males in performing their daily activities or responding to social obligations. They also self-evaluated their health positively compared to their counterparts among the poor non-members ($p < 0.05$), while no such difference was noted among the males. The low scores for MH scale achieved by the females, especially from the BRAC households, were on the verge of indicating depression, e.g. a score of 52 or lower is a cut-off for possible depression in the USA.

health was manifested by higher, albeit marginally sometimes, scores achieved by the literate respondents compared to the illiterate, in most scales examined. However, no significant group differences were observed with the exception of GH scale for literates.

Table 6 presents the SF-36 scores by 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. The respondents from non-deficit households

achieved better scores in general, illustrating the positive influence of affluence on perceived health status. In the deficit households, the respondents from BRAC

DISCUSSION

Over the last two decades, perceptions of individuals in assessing health status outcomes have gained more and

Table 4. SF-36 scores of study participants by BRAC membership status of households and age (mean±SD)

Scale	BRAC member households	Poor non-member households	Non-poor non-member households	p value	
	a	b	c	a vs b	a vs c
Age ≤30 years					
	(n=96)	(n=76)	(n=27)		
Physical functioning	80.31±18.97	78.09±17.98	78.88±19.28	0.436	0.732
Role-physical	63.54±45.14	52.96±47.42	64.81±46.12	0.140	0.898
Bodily pain	79.28±25.06	77.65±26.50	74.66±30.56	0.681	0.423
General health	53.86±24.76	48.96±22.20	55.96±21.76	0.179	0.691
Social functioning	90.49±16.69	92.92±16.62	95.83±9.8	0.343	0.039
Role-emotional	73.95±39.94	82.01±36.69	93.82±20.74	0.171	0.001
Mental health	64.00±23.57	64.73±21.32	67.85±22.20	0.832	0.449
Age 31-49 years					
	(n=315)	(n=271)	(n=93)		
Physical functioning	75.07±19.31	72.82±19.69	71.55±18.34	0.163	0.119
Role-physical	54.76±46.07	52.02±47.34	56.98±47.40	0.481	0.684
Bodily pain	74.35±25.36	70.37±28.24	75.66±26.40	0.075	0.664
General health	47.01±23.92	43.16±23.92	45.96±21.64	0.053	0.633
Social functioning	87.85±20.03	85.88±19.72	86.02±21.24	0.232	0.444
Role-emotional	67.30±44.98	71.70±44.29	66.66±45.04	0.234	0.905
Mental health	60.10±22.20	55.26±22.65	59.78±19.80	0.009	0.902
Age 50+ years					
	(n=52)	(n=44)	(n=30)		
Physical functioning	64.23±25.97	65.34±23.73	66.00±23.24	0.829	0.759
Role-physical	41.82±48.94	31.81±43.92	56.66±48.66	0.298	0.189
Bodily pain	62.78±31.85	62.02±32.56	80.70±22.41	0.908	0.004
General health	35.38±25.03	36.56±25.39	44.53±24.60	0.819	0.113
Social functioning	79.56±27.11	78.97±22.02	79.16±25.07	0.908	0.947
Role-emotional	60.89±50.58	59.84±46.35	70.00±43.19	0.916	0.411
Mental health	51.15±24.47	51.18±21.61	59.73±25.07	0.995	0.138

performed significantly better than their poor counterparts in RP ($p<0.05$), BP ($p<0.05$) and MH ($p<0.01$) scales.

Lastly, we analyzed 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 7. Expectedly, the respondents from BRAC reported better levels of current health ('much better' and 'somewhat better') compared to their non-member counterparts, poor or non-poor. The women of BRAC 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.

more importance. However, long measures of perceived health status used in research settings is not practical for use in large population surveys. Lessons learnt 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' (18). 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 the first of its kind in the country to study perceived health status of the respondents.

One important limitation of the study is the issue of selectivity bias, i.e. the concern that differences between BRAC households and poor non-member households

are not solely the result of programme effects but due to unmeasured characteristics that make the two groups for the Bangladeshi population for comparison. To get an idea about the magnitude of the scores achieved by

Table 5. SF-36 scores of study participants by BRAC membership status of households and literacy (mean $\pm$ SD)

Scale	BRAC member households a	Poor non-member households b	Non-poor non-member households c	p value	
				a vs b	a vs c
Literate					
	(n=368)	(n=264)	(n=133)		
Physical functioning	74.91 $\pm$ 20.67	74.37 $\pm$ 19.27	72.10 $\pm$ 20.23	0.738	0.177
Role-physical	56.72 $\pm$ 46.18	51.70 $\pm$ 46.87	59.39 $\pm$ 46.93	0.182	0.569
Bodily pain	74.62 $\pm$ 26.27	71.90 $\pm$ 29.18	76.93 $\pm$ 27.07	0.230	0.389
General health	46.96 $\pm$ 24.25	45.09 $\pm$ 23.74	48.07 $\pm$ 22.69	0.335	0.646
Social functioning	88.21 $\pm$ 19.85	86.64 $\pm$ 20.14	87.12 $\pm$ 21.14	0.332	0.594
Role-emotional	68.93 $\pm$ 44.74	72.97 $\pm$ 43.33	72.93 $\pm$ 42.27	0.256	0.370
Mental health	60.22 $\pm$ 22.65	58.15 $\pm$ 22.55	61.44 $\pm$ 21.68	0.255	0.592
Illiterate					
	(n=95)	(n=127)	(n=17)		
Physical functioning	75.05 $\pm$ 19.99	70.15 $\pm$ 21.55	69.11 $\pm$ 16.69	0.086	0.251
Role-physical	48.94 $\pm$ 47.39	46.25 $\pm$ 48.18	50.00 $\pm$ 50.00	0.679	0.933
Bodily pain	71.95 $\pm$ 27.06	68.65 $\pm$ 27.57	73.05 $\pm$ 20.43	0.374	0.874
General health	47.75 $\pm$ 26.38	40.33 $\pm$ 24.13	41.70 $\pm$ 20.69	0.033	0.298
Social functioning	84.60 $\pm$ 22.73	86.12 $\pm$ 19.04	80.88 $\pm$ 20.30	0.590	0.529
Role-emotional	64.21 $\pm$ 44.62	71.12 $\pm$ 43.91	66.66 $\pm$ 44.09	0.250	0.835
Mental health	58.65 $\pm$ 24.23	53.51 $\pm$ 22.52	59.52 $\pm$ 20.04	0.105	0.888

Table 6. SF-36 scores of study participants by BRAC membership status of households and solvency status (mean $\pm$ SD)*

Scale	BRAC member households a	Poor non-member households b	p value
			a vs b
Deficit households			
	(n=190)	(n=160)	
Physical functioning	73.50 $\pm$ 21.75	70.65 $\pm$ 20.69	0.214
Role-physical	56.31 $\pm$ 46.57	44.06 $\pm$ 46.79	0.015
Bodily pain	71.72 $\pm$ 29.33	63.43 $\pm$ 30.35	0.010
General health	44.32 $\pm$ 26.22	39.29 $\pm$ 24.18	0.065
Social functioning	85.65 $\pm$ 22.34	81.87 $\pm$ 22.59	0.117
Role-emotional	66.49 $\pm$ 45.29	65.00 $\pm$ 47.25	0.764
Mental health	58.56 $\pm$ 24.06	50.90 $\pm$ 23.77	0.003
Non-deficit households			
	(n=273)	(n=231)	
Physical functioning	75.95 $\pm$ 19.58	74.63 $\pm$ 19.58	0.451
Role-physical	54.30 $\pm$ 46.49	54.00 $\pm$ 47.35	0.943
Bodily pain	75.71 $\pm$ 24.11	75.98 $\pm$ 26.32	0.902
General health	49.08 $\pm$ 23.39	46.49 $\pm$ 23.38	0.217
Social functioning	88.73 $\pm$ 19.05	89.66 $\pm$ 16.87	0.566
Role-emotional	68.98 $\pm$ 44.35	77.48 $\pm$ 39.96	0.024
Mental health	60.83 $\pm$ 22.17	60.62 $\pm$ 20.93	0.913

* Non-poor households are excluded from this table because there was no deficit households among the non-poor

fundamentally distinct at baseline. Analysis by controlling some potential confounders in the study addressed this problem to some extent. Another limitation is the absence of a standard SF-36 score system

the respondents, comparison is made with US standards for the adults keeping in mind that cultural factors may influence how individuals assess their self health status. Lastly, a little lower response rate for the poor non-

BRAC households might have biased findings toward an under-estimation of difference between BRAC and non-BRAC poor groups.

Consistent negative evaluation of mental health status by the respondents, especially respondents from the BRAC households or deficit households, is interesting,

Table 7. Self-reported health transition over the last one year by BRAC membership and sex (%)

Reported health transition	BRAC member households			Poor non-member households			Non-poor non-member households		
	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

Apparently, the respondents from the BRAC households fared better, sometimes significantly, than those from comparable poor non-member group in most domains studied, e.g. functional status, well-being, social and emotional health, etc. and were sometimes comparable with the respondents from the relatively better-off households. These findings suggest that the member households have benefited perceptibly through improved household economic condition resulting from income-generating inputs of BRAC, such as credit, skill-development training, etc. This latter hypothesis is supported by 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 the BRAC member households and their poor non-member counterparts (19). It might be speculated, therefore, that the increase in informational and material resources for preventive and therapeutic healthcare, e.g. cash income for health expenditure on basic curative care, construction of latrine, installation of tubewell, improved nutrition, etc., arising through participation in development activities of BRAC have benefited the overall health of household members. This is also reflected in the findings from another study of the same project 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-poor mothers ($p=0.97$) (20). Again, the literate respondents or respondents from the non-poor households achieved higher scores showing the importance of socioeconomic status in achieving and perceiving better health. However, compared to the norms for US adult population, even the scores achieved by the respondents from the better-off households were uniformly worse.

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 (21-24). Another explanation in the case of the respondents from BRAC may be that development programmes concerned with material improvement of participants ignore the impact of subjective factors, such as 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 (25). Also of interest in the analysis is the fact that most 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.

This study witnessed age as the single most important determinant of perceived health status in the study population: gradual deterioration in all the scores was observed with the advancement of age. This draws our attention to plight of the elderly, especially the poor, in this society (26). The majority of elderly 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 elderly, but it is undermined by poverty. Lack of formal social security in old age, loss of income sources, exclusion of older people from services and support by NGO and Government, and social factors, such as deteriorating respect and empathy for the aged, etc., marginalize the elderly population in contemporary Bangladesh society. These factors combine together to a poor state of health physical or mental.

Another important aspect to note is the persistence of gender differentials in perceived health status—both physical and mental—among the respondents from BRAC despite its women-focused development interventions. This 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 gender 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 healthcare for women. It is interesting to note that, despite poor health perception, the women did not refrain from delivering their role in obligations to the society. This probably is a reflection of the demand that power of patriarchy places on the vulnerable women of rural Bangladesh society.

Generic measures of health status are necessary for comprehensive evaluation and monitoring of health of the concerned population and for evaluation of healthcare policies and interventions. This study shows that SF-36, when properly adapted to a non-western culture, can serve the purpose quite efficiently and can be a useful tool for the assessment of health status outcome in developing countries, like Bangladesh, from the individuals' perspectives.

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