Original article:

Measuring Health related Quality of life and its determinants among physically disabled adults in Bangladesh

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Abstract:

The prime purpose of the study was to assess the quality of life of physically disabled adults attending at rehabilitation center in Dhaka city, Bangladesh and to determine the relationship of the type of disability, educational level and relationship with the family with quality of life.Participants were 500 adults with physical disabilities. Thestructured questionnaire consist of WHOQOL-BREF were used as research instruments. When dividing the participants into three groups according to the level of total QOL score, in physical domain majority (96.2%) had fair level QOL score. In psychological domain veryfew(5.4%) had poor level and more than half (53.2%) had fair level QOL score and rest of them had good QOL score (41.4%). more than one third (37.2%) and nearly half(47.0%) had fair and good level respectively whereas rest of them (15.8%) had poor level of QOL in Social domain. In environmental domain a minimum number(3.8%) had poor QOL score but almost half (43.6%) and more than half (52.6%) had fair and good level of QOL score. The Cronbach's alpha coefficient of WHOQOL-BREF was adequate (0.914) for all 26 questions and for each domain the values are: Physical health domain (0.812), Psychological health domain (0.831), Social relationship domain (0.68) and Environmental health domain (0.78). Statistically significant correlations present between all domains. Mean and percentage of satisfaction rating in DOM1, DOM2 and DOM3 and DOM4 was higher in males than females. There were significant differences found in WHOQOL-BREF score between different education level group, different marital statusgroup,different employment statusgroup, differentincome level group, relationship with family, utilization of primary rehabilitation in four domains and total of WHOQOL-BREF ($P < 0.05$). multiple linear regression observed that education level and utilization of primary rehabilitation center is most important factor that affects QOL of study population in total and four domains of WHOQOL.The findings from this study confirm that the WHOQOL-BREF questionnaire is a reliable instrument to measure quality of life in disable adults. From the data, it appears that Bangladeshi disable adults have WHOQOL-BREF scores that might be considered to indicate a fair level of quality of life.

Keywords: Quality of life; Disability; Adult; Physically disabled; WHOQOL-BREF

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Introduction

More than one billion people are living with some form of disability in this world and among them 0.2 billion have functioning difficulties.[1)] It is estimated that in Bangladesh disabled population is approximately 16 million that is 10 per cent of total population whereas approximately 10-15% of the world's population lives with a disability.[2-3)]A number of study results showed that disability and poverty are intricately linked as both a cause and consequence of each other.[4)] Most of the disable people in the world are living with low, inadequate and uncertain income and

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depending on their families or society and some of them also might excluded from many opportunities such as participation in social, economic, political life of the society which makes their life miserable.[5,6] People with disabilities are affected by physical health, social relationship and life in the realms of family, friends, and neighbors, psychological state and level of independence and also felt-undervalued . [7] However physical limitations do not always lower quality of life in the disabled people if they have been helped sufficiently to compensate for their disable condition.[8] It can be said that education, employment and rehabilitation and disabled-friendly environment can assure better quality of life for them. [9] Our cross-sectional study was carried out to examine the quality of life of physically disabled adults in four districts of Bangladesh and to find out it's determinants.

Methodology

This cross-sectional study was conducted in district covered Division Dhaka (District: Dhaka, Narsingdhi, Faridpur) Division Chittagong (District: Chittagong, Bandarban, Cox's Bazar) Division:Rajshahi (District:Rajshahi, Bogura, Gaibanda, Khulna, Jessore, Jenaidah)andShylhet (Shylhet,Hobigonj, Mouluvibazar). Systamatic sampling technique was used to collect the data (162 sample from each division and our estimated sample size was 648. After excluding missing values sample size was 500 in total. According to the Rehabilitation of Disabled Persons Act A.D. 1991 (B.E. 2534), this study defined physical disability as "a person with obvious abnormality or malfunctioning of the physical condition which makes her/him unable to perform daily routine activities, or a person who has lost her/his ability to move hands, arms, legs, or body as a result of amputation, paralysis or weakness, rheumatic disease, arthritis or chronic pain including other chronic illness caused by body system dysfunction inhibiting her/him to perform daily routine activities or maintain a living like an ordinary person".[10]Study was conducted between May 2010 to May 2011. Those who do not willing to participate the study were excluded from the study. Inclusion criteria: Adults with physical disability who can understandBengali language. Exclusion criteria was adults with mental disability and children. The informed consents were obtained prior to data collection. One set of questionnaires consisting two parts was used as data collection tool. First part of questionnaire was designed to obtain personal factor related data such as age, gender, level of education, family type, and type of physical disability receiving any kind of rehabilitation. Rehabilitation receiving was assessed by their response yes or no. Second part of the questionnaire adopted fromWHO's Quality of Life WHOQOL-BREF questionnaire [11]This questionnaire was translated and validated Bengali language. Cronbach's alpha was assessed (internal consistency index). A trained person was present to explain how to complete the questionnaires. We used the brief version of the WHO's QOL scale (WHOQOL-BREF) in this study. This instrument derived from the WHOQOL-100. The WHOQOL-BREF questionnaire contains two items from the Overall QOL and General Health and 24 items of satisfaction that divided into four domains: Physical health with 7 items (DOM1), psychological health with 6 items (DOM2), social relationships with 3 items (DOM3) and environmental health with 8 items (DOM4). Five hundred disable adults filled out translated Bengali version of WHOQOL-BREF questionnaire. Each item is rated on a 5-point Likert scale. Each item of the WHOQOL-BREF is scored from 1 to 5 on a response scale. Raw domain scores for the WHOQOL were transformed to a 4-20 score according to guidelines.[12]Domain scores are scaled in a positive direction (i.e., higher scores denote higher QOL). The mean score of items within each domain is used to calculate the domain score. The total score in each domain and the total QOL score were classified into "poor", "fair", and "good" QOL according to the cutoff scores determined by the World Health Organization (WHO). The cut-off points of poor, fair and good QOL are 7 to 16, 17 to 26, and 27 to 35 for physical domain, 6 to 14, 15 to 22, and 23 to 30 for psychological domain, 3 to 7, 8 to 11, and 12 to 15, for social relationship and 8 to 18, 19 to 29, and 30 to 40 for environmental domain, respectively. The cut-off points of the total QOL score were 26 to 60 (poor), 61 to 95 (fair), and 96 to 130 (good).[12] descriptive statistic was performed to explain the personal factor including age, gender, education level, marital status, employment status (Unemployed, employed), income level, relationship with family, utilization of primary rehabilitation center .Quality of Life (QOL) was classified in to three levels according to the score distribution. Cronbach's alpha coefficient was applied to examine

the internal consistency of WHOQOL-BREF scale; Pearson's correlation coefficient was used to determine the level of agreement between different domains of WHOQOL-BREF. T-independent test and ANOVA was performed for group analysis and Multiple Linear Regression was used to control confounding effects.Limitation of our study is small sample size which may not showing actual scenario of our country. It can be assumed that without education and employment disability seems a curse because of having poor quality of life.

Results

In this study, majority of the(83%) participant were male and rest of them were female with the mean age of 35 years with minimum age 22 years and maximum age 50 years.The characteristics of study population are shown in Table 1.Among the 500 physical disabilities, only 10% got chance to reach primary school ,2.6% had chance to go to high school and above but majority of them (81%) had no education at all (Table 1). When dividing the participants into three groups according to thelevel of total QOL score, in physical domain majority (96.2%)had fair level QOL score. In psychological domainveryfew (5.4%)had poor level and more than half (53.2%) had fair level QOL score and rest of them had good QOL score (41.4%). more than one third (37.2%) and nearly half(47.0%) had fair and good level respectively whereas rest of them (15.8%) had poorlevel of QOL in Social domain. In environmental domaina minimum number(3.8%) had poor QOL score but almost half(43.6%) and more than half(52.6%) had fair and good level of QOL score. (Table 2). In this study Cronbach's alpha coefficient was applied to examine the internal consistency of WHOQOL-BREF scale (26 items) as well as the four domains of it. The Cronbach's alpha coefficient of WHOQOL-BREF was adequate (0.914) for all 26 questions and for each domain the values are: Physical health domain (0.812), Psychological health domain (0.831), Social relationship domain (0.68) and Environmental health domain (0.78). Table 3 present correlations between four domains of WHOQOL-BREF; as observed, there are statistically significant correlations between all domainsAs seen in table 4 among the different domains, considering gender the highest and the lowest mean and percentage of satisfaction were found for DOM1 (Mean = 20.12±3.34; percentage = 70.49) and DOM4 (Mean = 7.13±1.7)respectively. The mean score of four domains and total of WHOQOL-BREF according to sex, age, education level, marital status, employment status (Unemployed, employed), income level, relationship with family, utilization of primary rehabilitation centeris presented in Table 4. Mean and percentage of satisfaction rating in DOM1, DOM2 and DOM3 and DOM4 was higher in males than females (table 4). As Table 4shows, there were significant differences between different states of some variables for instance education level, marital status, employment status(Unemployed, employed), income level, relationship with family, utilization of primary rehabilitation in four domains and total of WHOQOL ($P < 0.05$). In this study after use of multiple linear regression (Table 5)observed that education level and utilization of primary rehabilitation centre is most important factor that affects QOL of study population in total and four domains of WHOQOL.

Discussion

In Bangladesh, there have been only a few systemic interventions to raise awareness of persons with disabilities at the community level. [13,14] In this study, majority (96.2%) had fair level QOL score in physical domain. In psychological domain more than half (53.2%) had fair level whereas nearly half(47.0%) had fair level of QOL score in Social domain. In environmental domain more than half (52.6%) had fair and good level of QOL score. In another study conducted in Thailand, there was 76% respondent was male with mean age group 25.08 with more than 50% of participantshave fair level of QOL in physical domain. Half of them have good QOL in psychological and social domain. But most of them have fair level of QOL in environmental domain.[15]Findings are almost similar of our study. Among the 500 physical disabilities, only 10% got chance to reach primary school ,2.6% had chance to go to high school and above but majority of them(81%) had no education at all (Table 1).Among the 500 physical disabilities, only 10% had chance to get education in high school and above but bachelor degree while rest of them(81%) had no education at all .We found almost similar result of education level of physical disability people at study was conducted in rural Bangladesh.[13]Age did not have influence on QOL of physically disabled adults. Both male and female mean QOL was in fair QOL level.One

of the major objective of this study was to evaluate the reliability (internal consistency) of WHOQOL-BREF questionnaire in health- care staff. Reliability analysis in this study indicated an acceptable internal consistency of WHOQOL-BREF scale (α = 0.714) and for each of its domains were high, which is closure to Mazaheri (α = 0.62) studies.[16]Other purpose of this study was to evaluate the QOL of disable people with use of the Bangladeshi version of the WHOQOL-BREF questionnaire. To our knowledge, this is one of the first studies assessing QOL among the disable adults using WHO-BREF in Bangladesh.In this study, among the four domains of WHOQOL-BREF, the highest mean satisfaction rating was found for DOM1 (physical health, Mean= 22.07) implying good activities of daily living, less dependence on medicinal substances and medical aids, enough energy and mobility, less pain and discomfort, sufficient sleep and rest and good work capacity. Moreover, the lowest mean score was shown for DOM3 (Social relationship, Mean = 9.95), indicating not very good attitude towards them from other people which is similar to study conducted in Nigeria. [17]In Mazaheri' study observed that mean scores of four domains were different and the most difference was between DOM1 and DOM4 which is different from our study may be because of different socioeconomic background.[16]In addition,At our study the mean score of satisfaction rating in DOM1, DOM2 and DOM3 and DOM4was higher in males than females which is different from a study done in Iran [11]may be due to study conducted in healthcare staffs whereas our study revealstotal mean score of QOL is found higher in male(Mean=16.50) which is different from a study conducted in Thailand may be because of social disparity and male predominant culture exist in Bangladesh but not in Thailand. [15] In this study after use of multiple linear regression (Table 5)observed that education level and utilization of primary rehabilitation centre is most important factor that affects QOL of study population in total and four domains of WHOQOL. Which is similar to study conducted in boukan city[18] which reveals relationship between education and Quality of life score. But,study conducted in Malaysia which shows relationship between educational level and QOL score but in their study no relationship found between utilization of primary rehabilitation centre and QOL score.[19]

Table 1: Characteristics of study population (n=500)

Characteristics	Number	Percentage
Sex		
Male	419	84
Female	81	16
Age		
21-30yrs	140	28
31-40yrs	282	56
41-50yrs	78	15
Education		
No schooling	405	81
Primary	50	10
High school	13	2.6
college or above	13	2.6
Employment		
Unemployed	4	0.8
Employed	496	99.2
Income		
<1000	97	19
1000-4000	340	68
>4000	63	12
Relationship with family	7	
Bad	300	1.4
Very bad	27	60
Average	143	5.4
Good	23	28.6
Very good		4.6
Utilization of primary rehabilitation center		
Yes	235	47
No	265	53

Table 2. Level of Quality of Life of physically disabled adults

Domains of WHOQOL-BREF	Poor (n %)	Fair (n %)	Good (n %)
Physical	3.8	96.2%	0
Psychological	5.4	53.2	41.4
Social	15.8	37.2	47
Environmental	3.8	43.6	52.6

Conclusion

The findings from this study confirm that the WHOQOL-BREF questionnaire is a reliable instrument to measure quality of life in disable adults. Though disabled people of Bangladesh have to face myriad types of problems. From the data, it appears that Bangladeshi disable adults have WHOQOL-BREF scores that might be considered to indicate a fair level of quality of life. but the constitution is nearly devoid of any thing about them. The government failed to enact comprehensive rules and regulations to ensure their rights and opportunities. There are several private organizations to help the disabled children, but they are dependent on foreign aid. The government here looks into the affairs of the disabled person's through the Ministry of Welfare. But sometimes it becomes difficult to run projects for improvement of their quality of life due to political instability and other obstacles. It is concerned with the education, rehabilitation and development of the disabled persons.The private sectors could come forward to ameliorate the conditions of the disabled people. The rich could contribute for their overall development. There should be coordinated development program concerning the betterment of the disabled.

Ethical Approval: Institutional ethical approval has been taken.

Conflict of interest: The authors declared no conflict of interest

Authors' contributions:

Data gathering and idea owner of this study: SZY, SMH

Study design: SZY, SMH

Data gathering: SZY, SMH

Writing and submitting manuscript: SZY, SMH, NBJ, MKA

Editing and approval of final draft: SZY, SMH, NBJ, MKA

Table 4: Comparison of the WHOQOL-BREF mean scores in four domains according to sex, age, education level, marital status, employment, income level, relationship with family and utilization of rehabilitation centre

	Domains			
	Physical Health	**Psychological Health**	**Social relationships**	**Environmental Health**
	Mean±SD	**Mean±SD**	**Mean±SD**	**Mean±SD**
Total	22.07±3.27	20.12±3.15	9.95±2.1	29±2.2
sex				
Male	20.12±3.34	16.61±2.84	8.21±2.23	19±5.43
Female	18.86±2.63	15.40±1.99	7.13±1.73	16.34±3.72
p-value	<.001	<.001	<.001	<.001
Age				
21-30yrs	22.43±2.90	20.42±3.03	10.10±1.95	29±5.03
31-40yrs	22.10±3.51	20.12±3.21	10±2.32	29.21±5.65
41-50yrs	21.32±2.87	19.56±2.39	9.5±2.10	28.35±4.4
p-value	0.06	0.13	0.14	0.32
Education				
No schooling	23±2.62	21.03±2.3	10.55±1.81	30.75±4.06
Primary	19.18±2.70	17.32±2.6	8.36±1.73	24.98±19.63
High school	17.15±1.42	15.57±1.4	6.26±.452	19.63±1.06
college or above	16.73±2.66	14.57±1.39	6.38±1.62	19.03±3.16
p-value	<.001	<.001	<.001	<.001
Employment				
Unemployed	21±1	19±1.2	9±1	27±1.3
Employed	22±3.28	20±3.06	8±1	29±5.3
p-value	<.001	<.001	<.001	<.001
Income				
<1000	23.78±2.21	22.07±1.78	11.44±1.22	32.68±2.72
1000-4000	22.50±2.84	20.45±2.60	10.09±1.99	29.72±4.50
>4000	17.15±2.01	15.31±1.7	6.93±1.38	20.61±3.02
p-value	<.001	<.001	<.001	<.001
Relationship with family				
Bad	24±0	23.00±0	12±00	34±00
Average	23.66±2.41	21.67±2.05	11.02±1.64	31±3.5
Good	19.08±2.17	17.23±1.99	7.94±1.2	24.18±3.05
Very good	17.47±2.50	15±1.79	6.65±1.94	19.30±3.32
p-value	<.001	<.001	<.001	<.001
Utilization of primary rehabilitation centre				
Yes	19.06±2.24	17.30±2.03	7.96±1.47	24.11±1.47
No	24.75±.70	22.61±.79	11.72±.73	33.60±.91
p-value	<.001	<.001	<.001	<.001

Table: 5 Backward multiple linear regression analyses of significant factors associated with QOL

QOL Domains	Variables	Unstanderized Coefficient		Standerized Coefficient	t	P-Value
		B	SE	Beta		
DOM1	Education level Primary	-0.856	0.131	-0.205	-6.5	<.001
	Rehabilitation center Utilization	4.86	0.168	0.743	28.97	<.001
DOM2	Education level	-0.908	0.113	-0.232	-8	<.001
	Primary Rehabilitation Center Utilization	4.11	0.144	0.672	28.55	<.001
	Relationship with family members	-0.544	0.124	-0.113	-4.37	<.001
DOM3	Education level	-429	0.093	-0.152	-4.61	<.001
	Primary Rehabilitation center Utilization	3.04	0.118	0.118	0.692	<.001
	Relationship with family members	-0.251	0.102	-0.73	-2.4	0.015
DOM4	Education	-1.428	0.153	-0.21	-9.34	<.001
	Primary Rehabilitation center Utilization	7.35	0.195	0.692	37.71	<.001
	Relationship with family members	-0.802	0.169	-0.096	-4.75	<.001
Total	Education level	-4.03	-0.213	0.153	-8.98	<.001
	Primary Rehabilitation center Utilization	21.02	0.709	0.195	36.75	<.001

QOL=Quality of life

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