Applicability of WHO Health Related Quality of Life Instruments [Bref Version] On Adolescent Medical Students Of West Bengal

Bhaswati Ghoshal[1], Subhrajit Lahiri[1], Kalyanbrata Mandal[2], Debasmita Bandyopadhyay[3], Amit Majumdar[4]

[1]*Dept. of Pediatric Medicine Calcutta National Medical College*
[2]*Department of Pediatric Medicine North Bengal Medical College*
[3]*Department of Microbiology, Nilratan Sarkar Medical College*
[4]*Department of Microbiology. Calcutta Medical College*

ABSTRACT

Aims and Objectives: To assess the applicability of WHO health related quality of life instruments [BREF version] on the adolescent medical students of West Bengal. **Methodology:** A cross sectional study conducted in six medical colleges of West Bengal, India. The medical students of less than 19 years were taken for the study. The questionnaires of WHO HRQOL BREF was prepared as a proforma and was distributed in six medical colleges and responses were collected .The data was computerized and was analyzed by SPSS version16 software. **Results and Interpretation:** 132 cases were examined finally with mean age of 18.76 years. The numbers of males were 91 [68.9%] and the numbers of females were 41 [31.1%]. The responses are different in males and females and in students from medical colleges of Kolkata [state capital] or outside Kolkata. The validity of the questionnaire in this subset of population is found mainly in the psychological domain. **Conclusions:** WHO HRQOL BREF is a good tool to assess the health related quality of medical adolescents.

Key words: Adolescent; medical student; Health related quality of life [HRQOL]

INTRODUCTION

Health related quality of life has been defined by World Health Organization as "individuals perception of their position in life in context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns."[1] Health related quality of life [HRQOL] represents a biophysical social orientation towards the concept of health.[2] WHOQOL 100 is a cross culturally valid assessment of wellbeing with 100 items representing 25 facets organized in six domains.[3,4]The WHO-QOL BREF is an abbreviated 26 items version of the WHOQOL-100 containing items that were extracted from the WHOQOL-100 field trial data. WHOQOL BREF is scored in four domains as domain 1—physical health, domain 2—psychological, domain 3—social relations and domain 4—environment.[5] Adolescents comprise about a quarter of global as well as Indian population and their numbers are projected to increase with time[6] as the healthiest segment of the society with lowest mortality and morbidity rates.[6] Adolescent medical students are coming from upper middle class or middle class society usually with recent changes in life with heavy burden of medical curriculum. They are late adolescents with good perception of their health related quality of life. Assessing HRQOL of medical students will assess the extent to which their living conditions are compromised and the means of promoting it.

Address for correspondence: Bhaswati Ghoshal, Bankimpally Post-Madhyamgram, Kolkata-129
Phone: 9830040996
E-mail: bhaswatighoshalmailme@yahoo.com

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METHODOLOGY

This cross sectional study was conducted on 1st year medical students of six medical colleges[medical schools]

of West Bengal, India after approval from Institutional Ethics Committee of individual colleges. The age cut-off was taken as 19 years [late adolescents].Three medical colleges are situated within the city of Kolkata ,the capital of West Bengal : Calcutta Medical College(CMC), Calcutta National Medical college(CNMC), Nil Ratan Sarkar Medical College(NRSMC). The medical colleges outside the city of Kolkata i.e.; in other small towns of the state are North Bengal Medical College(NBMC), Kalyani Medical College(KMC) and Midnapur Medical College (MMC). The date of birth of students were confirmed and those who are more than 19 years were excluded from the study. The incomplete response to the questionnaires were excluded from the study. Period of study was January to March 2011.

WHOQOL-BREF instrument was used for the study which was developed by WHO.[1] The instrument constitute of 26 questions; the responses were recorded on a five point likert scale. Four types of Likert scales were used in the instrument viz, Intensity[not at all-extremely/an extreme amount],Capacity[not at all/completely],Frequency[never/always] and Evaluation [verypoor/very good/,very dissatisfied/satisfied]. Out of the 26 items two are global scores :over all QOL and overall satisfaction with health and the rest of the 24 items produce a generic HRQOL score across 4 dimensions: physical, psychological, social relationship and environment. A third global score namely overall health related quality of life was computed by averaging the two global scores. The global scores ranges from 1 to 5 and the four dimensions have the score range of 4–20 that was transformed to 0-100 scale.

Assuming that the number of students admitted in 1st year in 2010 in different medical colleges of West Bengal were 1100,to detect the a mean HRQOLscore of 50% at a desired precision of 10% and 95% confidence interval, a minimum sample size for the study was computed as 89. The questionnaires of WHOQOLBREF were prepared in a proforma and were sent to six medical colleges mentioned above. After taking the consent of the students, the questionnaires were distributed after the morning lecture class and 10 minutes time were allotted to answer the questions. Initially about 501 responses were collected of which incomplete responses and responses from students who were more than 19 years were excluded from the study. From the rest of the samples, 132 responses were selected randomly.

The data were computerized and statistical analysis was done with SPSS version 16 for Windows[Chicago, II USA]. Statistical analysis was performed at 95% confidence interval and results with p value <0.05 were considered statistically significant. There were two global scores; overall QOL item and a overall satisfaction with health and a third global item score namely, global HRQOL was obtained by averaging the two global items.[7] The responses in each questions were transferred in cumulative frequency for better analysis. The mean of different domain scores were calculated and were compared individually and its relation to others. Internal consistency, a measure of reliability of an instrument, was defined as the degree to which the items of a domain or scale assess the same domain.[8,9] ANOVA test was done to see the relationship of different responses in different domains and for its comparisons. Spearman's correlation coefficient was computed to calculate intra-domain correlations. Linear regression analysis was done with HRQOL as dependent variable. Content validity,[10] the extent to which a measurement reflects the specific intended domain of content, was assessed by calculating Item-domain correlations and Inter-domain correlations.[11] Construct validity, the extent to which an instrument measures the intended construct[12] was assessed by calculating the cross-domain correlations.[8]

RESULTS

Around 750 questionnaires were distributed to the six medical colleges. Out of 177[23.6%] questionnaires matching the age criteria of <19 years on the day they marked the responses 132 were complete. The rest had to be discarded because of incomplete marking.132 cases were examined finally with mean age of 18.76 years. The numbers of males were 91[68.9%] and the numbers of females were 41[31.1%].

The descriptive statistics of the analysis including the mean and SD of the individual domains and HRQOL are given in Table 1.The correlation of the individual questions with the domains was found good except question six i.e. 'To what extent do you feel your life to be meaningful?' of psychological domain which did not show a good correlation. The inter-domain correlation was found to be good.

The analysis of construct validity showed that all cross-domain correlations were significantly lower than the item-domain correlations. Thus, WHO QOL-BREF illustrated good construct validity as all items had substantially higher correlations with their intended domains rather with other domains of the instrument.

Table 1: Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
HRQOL	132	9.50	100.00	69.2761	22.91809
PHYSICAL	132	129.50	662.10	4.6437E2	111.18921
PSYCHOLOGICAL	132	175.10	556.10	3.9531E2	78.28086
SOCIALRELATIONS	132	9.90	300.00	1.9969E2	69.06101
ENVIRONMENT	132	113.20	828.80	5.5610E2	138.63496
Valid N (listwise)	132				

Table 2: Linear Regression With Hrqol As Dependant Variable

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	12.366	10.738		1.152	.252
	PHYSICAL	.105	.017	.509	6.012	.000
	PSYCHOLOGICAL	.000	.023	−.003	−.036	.971
	SOCIALRELATIONS	−.014	.028	−.042	−.491	.624
	ENVIRONMENT	.020	.014	.122	1.432	.155

a. Dependent Variable: HRQOL

Results of correlations between the three global scores, *i.e.,* global QOL, global health and global HRQOL, with the four domain scores showed that, global HRQOL had highest correlations with all the four domain scores. So, linear regression was done with HRQOL as the independent variable against individual domains and it was found that physical domain has significant regression with HRQOL, the coefficient being 0.509.[Table 2].

Pearson's correlation was also performed between HRQOL and the domains which showed significant correlation with p value<.05 in all domains.[Table 3]

Now to find out the contribution of the domains in determining a good overall quality of life we divided the HRQOL into 3 groups vise: above 75th [score <90], 25th–75th [score 60–89.9]and below 25th [score <60] percentiles. Then a T-test was done with groups one and three of above against the four domains as variables. Results showed psychological domain scores played a significant role in determining a good HRQOL. [Table 4]

When males and females were compared there were no significant differences in HRQOL. But girls significantly [p<.05] scored more than boys in questions 12, 15, 21 which are: 'Have you enough money to meet your needs?' , 'How well are you able to get around?' , 'How satisfied are you with the respect you get from others?' respectively. Boys scored significantly more than girls in question three i.e. 'To what extent do you feel that physical pain prevents you from doing what you need to do?'

We divided the colleges into two groups: one of Kolkata consisting of CMC,CNMC,NRSMC, [group 1] and one outside Kolkata comprising of NBMC,KMC and MMC[group 2].We performed the descriptive statistics and one way ANOVA and saw that group 1 scored significantly more than group 2 in questions 15,16,21,24 and 26 i.e.; 'How well are you able to get around?', 'How satisfied are you with your sleep?', 'Are you satisfied with the respect you receive from others?', 'How satisfied are you with youraccess to health services?' and 'How often do you have negative feelings such as blue mood, despair, anxiety, depression?' The scores of males and females in HRQOL and individual domains are comparable as given in fig1.

DISCUSSION

The present study is aimed at to determine the applicability of the WHOQL-BREF to late adolescents and the differences in quality of life between of the medical students of different medical colleges of West Bengal. All the questions used in the proforma in different domains were showing good correlations with the domains except

Table 3: Correlation Of Hrqol With Domains.

Correlations						
		HRQOL	PHYSICAL	PSYCHOLOGICAL	SOCIALRELATIONS	ENVIRONMENT
HRQOL	Pearson Correlation	1	.542**	.161	.188*	.302**
	Sig. (2-tailed)		.000	.065	.031	.000
	N	132	132	132	132	132
PHYSICAL	Pearson Correlation	.542**	1	.303**	.348**	.390**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	132	132	132	132	132
PSYCHOLOGICAL	Pearson Correlation	.161	.303**	1	.232**	.155
	Sig. (2-tailed)	.065	.000		.007	.076
	N	132	132	132	132	132
SOCIALRELATIONS	Pearson Correlation	.188*	.348**	.232**	1	.431**
	Sig. (2-tailed)	.031	.000	.007		.000
	N	132	132	132	132	132
ENVIRONMENT	Pearson Correlation	.302**	.390**	.155	.431**	1
	Sig. (2-tailed)	.000	.000	.076	.000	
	N	132	132	132	132	132

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table 4: Table showing the contribution of each domain in determining a good or bad HRQOL.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
PHYSICAL	Equal variances assumed	.050	.824	−5.763	97	.000	−120.06236	20.83159	−161.40729	−78.71743
	Equal variances not assumed			−5.804	62.238	.000	−120.06236	20.68555	−161.40904	−78.71568
PSYCHOLOGICAL	Equal variances assumed	6.944	.010	−2.426	97	.017	−41.81535	17.23705	−76.02613	−7.60456
	Equal variances not assumed			−2.109	44.496	.041	−41.81535	19.82284	−81.75308	−1.87761
SOCIALRELATIONS	Equal variances assumed	.236	.628	−1.599	97	.113	−24.81264	15.51691	−55.60940	5.98412
	Equal variances not assumed			−1.566	57.988	.123	−24.81264	15.84770	−56.53539	6.91011
ENVIRONMENT	Equal variances assumed	.128	.721	−2.140	97	.035	−64.50984	30.14794	−124.34516	−4.67452
	Equal variances not assumed			−2.206	66.090	.031	−64.50984	29.24781	−122.90349	−6.11619

question number six in psychological domain [to what extent do you think your life to be meaningful?] which indicates the level of spirituality in life. The linear regression analysis with HRQOL as independent variable against different domains it is found that the physical domain most significantly correlated with overall quality of life. Thus in spite of having good construct and content validity the instrument failed to show good predictive validity of the instrument among late adolescents. The seven questions in physical domain deals with different facets of life as pain and discomfort ,medication required in everyday life, energy and fatigue, mobility, sleep and rest, activities of daily living, work capacity. The present data is a good indicator of these different facets of life in late adolescent medical students. The environmental domain also has significant correlation. HRQOL is a subjective concept and its assessment actually represents the gap between individuals expectations and perception

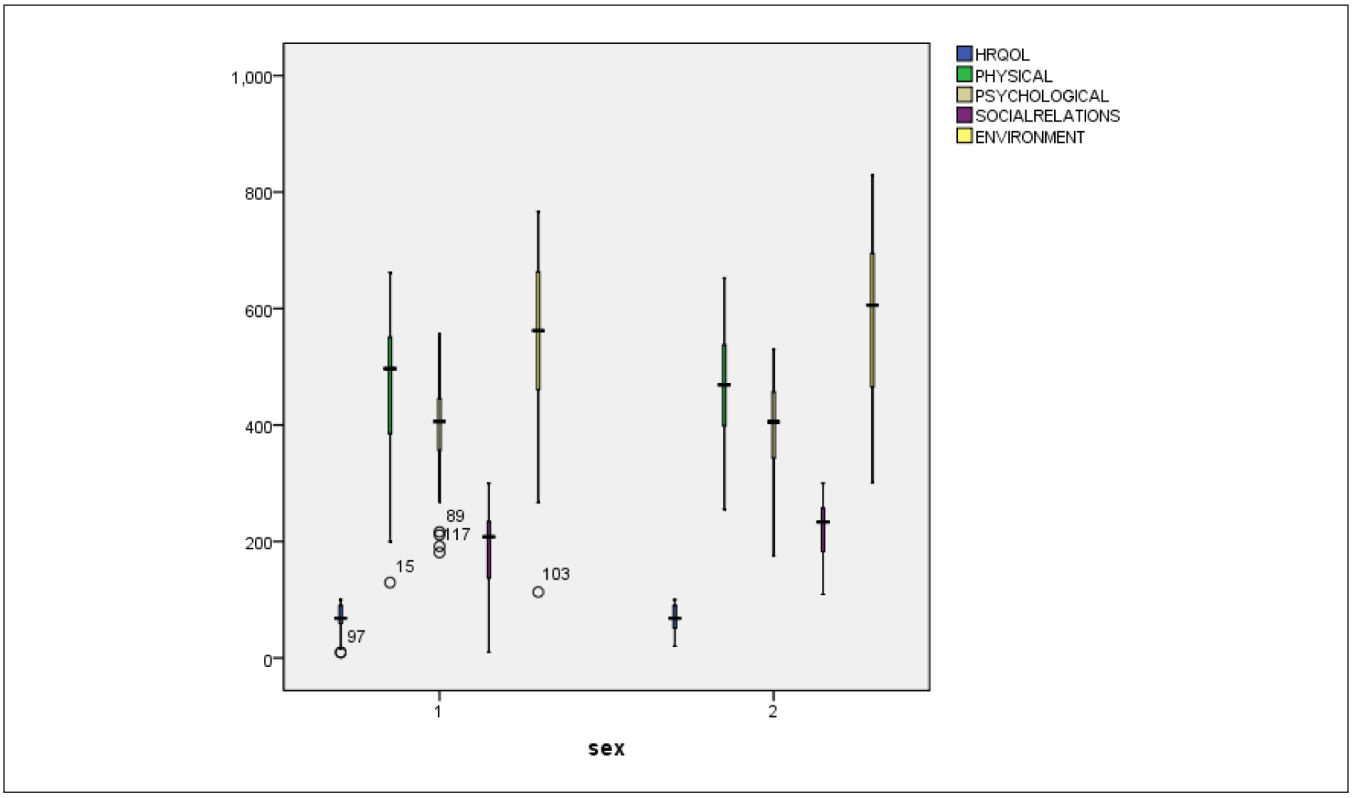

Figure 1: Showing distribution of domain scores among males and females (1=male,2=female)

of realities, often referred to as Calmans gap[13,14] which makes it obvious that reduction in this gap will result in enhanced HRQOL. According to Pearsons correlation coefficient in the present analysis all the domains like physical, psychological, environmental, social relation domains are significantly correlated with HRQOL. The determinants of good HRQOL are good performance in psychological domain as expressed by t test. So, modifications to improve the psychological aspects of life will have largest positive impact on improving the HRQOL of medical adolescence.

The gender difference in healthy adolescents and children usually emerge in early mid-adolescence[15]The females scored better than males in question no12, 15, and 21. The female students have less outdoor habits and they are satisfied with less amount of money they have and are happy with the respect they get from others. The male adolescents have more outdoor habits and risk taking behaviors and they need more money and wants to move around more.

In analyzing responses from different Medical colleges it is found that the medical students who are studying in medical colleges outside the city of Kolkata suffer from negative feelings more, have less chances to move around, feel themselves more insecure regarding the access they have to the health services [in spite of being a medical student] and have minimum self respect. Thereby the common problem of adolescents in accessing health care facilities exists even in medical students.

The overall HRQOL was low [mean 69] in our study. Lower HRQOL in older adolescents has been reported previously by several studies conducted at different centers.[16,17,18]. Older adolescents may experience a lower HRQOL possibly due to their struggle for increasing individualization, developing autonomy, moving away from parental influences, tendency for experimenting with risky behaviors[18] as well as increasing predisposition to psychiatric disorders and increased susceptibility to negative influences of social and peer pressures.[19,20].

The environment around the outside Kolkata Medical colleges should be improved further to make the adolescents happier and secured whiles their study.

HRQOL-BREF is a good instrument to study the mental health of late adolescent medical students of West Bengal with significant difference in males and females and

among students of Kolkata and outside Kolkata medical colleges, though the applicability in late adolescent in our study was not found as good as in middle and early adolescents or adults.

CONCLUSION

WHOHRQOL-BREF is a good instrument to assess the health related quality of life of first year MBBS students who are late adolescents. It is the psychological domain which have highest impact in modifying their quality of life. Overall mean HRQOL is lower in the present study. Moderate differences exist among responses of males and females as females scored better in question number 12,15 and 21. The students of medical colleges of outside the main city of West Bengal feel more insecure regarding their access to health services and have minimum self respect.

Conflicts of interest notification:

Conflict of interest: none

ABBREVIATION

WHO : World Health Organization
WHOQOL : World Health Organization Quality of Life
HRQOL : Health Related Quality of Life
CMC : Calcutta Medical College,
CNMC : Calcutta National Medical college
NRSMC : Nil Ratan Sarkar Medical College

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