Health Related Quality of life among undergraduate medical students of Kolkata

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Abstract

Introduction: The health is an estimation of well-being and this can be assessed by measuring the improvement in the quality of life related to health care. It can be measured.

Objectives: This study was conducted to assess the quality of life of medical students identifying the factors related to it.

Materials and methods: The study was observational, *cross*-sectional among undergraduate medical students of Kolkata. Psychological general well-being (PGWB) scale was study tool to collect data. The global score ranges from 0 (poor quality of life) to 110 (good quality of life). Sample size was 493. Outcome variable and explanatory variables were taken into the study. Analysis was performed with SPSS 10.0 Software.

Results: Response rate was 89.64 percent. Maximum students (65.5%) were of the age group 20-23 years. More than two-third were male. Maximum students (71.2%) came from Class I and II. A sizable amount of students (33.8%) were with depression. Up to the age of 23 yrs, majority of the students (63.6% to 68.1%) had a high score. Students of hostels and homes of different economy had no score difference. The difference between high scores in presence or absence of hobby was statistically significant. Those who suffered from any disease/disability had moderate depressive disorders.

Conclusions: Among students of age > 23 years, students without hobby, students with disease or disability mild to moderate depression was found. Other variables did not cause any discernible impact on mental status.

Key words: Kolkata, Quality of life, Undergraduate medical students

Introduction:

The Constitution of the World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." It follows that the measurement of health and the effects of healthcare must include not only an indication of changes in the frequency and severity of diseases, but also an estimation of well-being and this can be assessed by measuring the improvement in the quality of life related to health care. Although there are generally satisfactory ways of measuring the frequency and severity of diseases, this is not the case as far as the measurement of well-being and quality of life are concerned.[1] WHO defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment."[1]

Ferrell, who has carried out a large research program on pain and quality of life, defined quality of life as well-being covering four areas. Quality of life is physical, mental, social and spiritual well-being. [2] Therefore, subjective evaluation of one individual is one of the very important issues in relation to quality of life.

Many international studies were conducted about Health Related Quality of Life (HRQL) among medical students. In one of such studies among medical students, major impairments in HRQL were observed among third year students, students with depressive symptoms and girl students. Medical schools should institute efforts to ensure that students' HRQL and emotional support are maintained, particularly during pre-examination and post-examination phases of medical training when they are highly stressed. [3]

Issues linked with the notions of quality of life (QOL) and with motivation to learn by medical students have not been well documented. This is true in both the international and the Indian contexts. Our article addresses this lack of research by focusing on the QOL of medical students.

Although there is evidence to suggest that medical students do well academically, but it was suggested by some studies that the current educational process may have inadvertent negative effect on students' mental health with a high frequency of depression, anxiety and stress which is much higher than the normal population leading even to suicidal tendencies. Henning MA et al study also suggested that the psychological distress among students may adversely influence their academic performance, contribute to their academic dishonesty and play a role in alcohol and substance abuse. So it was felt that an investigation into their QOL would be instructive as QOL will likely have an impact on cognition, behavior, general well-being and motivation. [4]

Various scales have been utilized to assess the general wellbeing (feeling of happiness or unhappiness) of an individual. In the present study, the Psychological General Well-Being (PGWB) Index scale (A measure of self-representations of intrapersonal affective or emotional states reflecting a sense of subjective well-being or distress) was used. [5, 6] The PGWBI questionnaire is a validated Health Related Quality of Life (HRQoL) measure, widely used in clinical trials and epidemiological research to provide a general evaluation of self-perceived psychological health and well-being. This has been utilized as an instrument to assess the quality of life attributes.

With this background, this study was conducted to assess the quality of life of medical students with emphasis on finding out socio-demographic status of the participants, identifying the factors related to quality of life of them and assessing the well-being status of the subjects.

Materials and methods:

Type of study was observational, descriptive, institution based. Study design was Cross-sectional. Place of study was one of the medical colleges of Kolkata. Study population was all undergraduate students of a medical college of Kolkata. Study tool was a pre-designed and pre-tested questionnaire. Psychological general well-being (PGWB) scale [5, 6] was used to collect data for the purpose of assessment of quality of life of the students.

PGWB scale was utilized to access the individual feels about his/her 'inner personal state' rather than about external condition.The PGWB is comprised of 22 items in the following 6 dimensions: anxiety (5 items); depressed mood (3 items); positive well-being (4 items); self-control (3 items); general health (3 items); and vitality (4 items). Responses are rated on a six-point Likert scale ranging from 0 (reflecting the most distress) to 5 (reflecting the highest level of well-being. Global score is often ranging from 0 to 100 (when items range from 0 to 5) or 22

to 132 (when items range from 1 to 6). For the current study, this instrument was scored following the approach proposed by Chassany et al in the recently published user's manual. The six PGWB raw subscale scores were computed by summing the item responses, and the raw global score is the sum of the six subscale scores. Then, these raw scores were transformed to a 0–100 scale by dividing each raw score by the maximum possible score, multiplying by 100. Higher scores reflect better well-being. A global score is also (TGWB) computed as the sum of scores on the 6 dimensions. The global score is calculated by the sum of the 6 dimension scores. It ranges from 0 (poor quality of life) to 110 (good quality of life), thus based on the 0-5 item scaling range.

This self-administered questionnaire included both positive and negative questions with a time limit (5-10 minutes). Its approach may be seen as more "positive" than other quality-of-life scales because it measures well-being rather than disability. The PGWB scale gives us 3 categories of people based on the global score acquired by the students. Score ≤ 23 was classified as severely depressed. Score 24-63 was categorized as mild to moderate depression. Students who got score 64-110 were considered normal.

The test-retest reliability co-efficient of the scale after three months was between 0.68 to 0.85 with an internal consistency of 0.95. The correlational validity was between 0.65 to 0.90. Internal consistency reliability is the extent to which individual items within a scale are related to one another. Internal consistency was examined for the PGWB subscales and global score using Cronbach's formula for coefficient alpha. Cronbach's alpha with greater than 0.70 is generally considered acceptable. [8] The overall score was fairly stable over time but was sensitive to change in patient status.

Socio-economic class (Category) of the students was assessed and the scale used was the Modified B. G. Prasad scale. [7]

Depending upon the per capita monthly income, BG Prasad developed the scale to assess the socioeconomic status and it was modified time to time. According to this scale there are five classes, class I-V (class I - ≥ Rs. 3653, II - Rs. 3652- 1826, III - Rs.1825-1096, IV - Rs.1095-548, V - ≤ Rs. 547, based on per capita monthly income in Indian rupees).

Sample size was 493. Sampling technique was census population of students. Out of 550 students 493 were available to provide complete information in one to three visits.

Outcome variable was quality of life (anxiety, vitality, depressed mood, self control, positive well-being, general health). Explanatory variables were semester, age, gender, religion, residence, per capita monthly income (PCMI), type of family, hobby, siblings, parents, disease or disability. May and June, 2012 was the study period for designing the study, questions formulations, pre-testing, data collection, compilation, analysis and interpretation.

Data collection procedure:

Data collection was done through self-administered questionnaire and psychological general well-being (PGWB) scale. [5, 6] Their verbal informed consent was obtained. Participation was voluntary and anonymity was maintained. The students were approached and the questionnaire explained to them properly before filling in. The questionnaire was distributed and ten minutes were allotted for filling the sheets; consisting of twenty two questions. The students were asked to complete the questionnaire in a class at the end of a lecture and return them to the author in the same session. In this manner 493 filled sheets were available for data compilation.

Inclusion criteria:

All the students who were present and gave the consent on the day(s) of data collection.

Exclusion criteria:
1. The students who refused to answer the questions were excluded. 2. The students who were unavailable at the time of data collection. The students were approached three times for data collection.

Data management and statistical analysis:

In the current study, there were no missing data on any of the measures, and therefore, procedures for handling missing data were not followed. All analyses were performed with SPSS 10.0 Software. Total scores for PGWB were calculated and analysed by age, gender, study year, religion, and residence, and socio-economic status, type of family, hobby, sibling and presence of illness. Frequency tables were used to calculate the prevalence rates of demographic variables. For non-parametric variables, chi-square tests were conducted; $p < 0.05$ was considered significant.

Institutional Ethics Committee approval: The study was approved by the Research Ethics Committee of the educational institution.

Results:

We received 493 completed questionnaires, representing a response rate of 89.64%. Majority of students were from 2nd semester, followed by 4th, 6th and 8th semester. Maximum students (65.5%) were of the age group 20-23 years followed by 17-19 years (32.9%) and > 23 years (1.6%). Male and female student ratio was 338 (68.6%): 155 (31.4%). Most of the students were Hindus (80.4%) followed by Muslims (14.0%) and others (5.6%) included Christians, Jains and Santhali. Most of the students (62.9%) were hostelites, followed by day scholars (29.4%) who availed public modes of transportation. 7.7% students travelled through private vehicle and /or by walk. Socio-economic class of students was assessed according to modified B G Prasad scale.[7] Maximum students (71.2%) came from Class I and Class II and rest belonged to Class III (7.5%), Class IV (12.6%) and

Class V (8.7%). Majority of the students (89.7%) came from a nuclear family and rests (10.3%) were from joint or extended joint or three generation family. Broken or problem family was not found. Most of the students (68.4%) were found with one or multiple hobby. Common hobbies were social networking (face-booking), games like cricket, table tennis. 59.2 percent of students had sibling. Among them, majority had only one sibling. Few students (10.6%) were found with one or more physical illnesses.

Students of all semesters had a similar pattern of score distribution. Most of the students (66.7% to 69.8%) in 2nd, 4th and 6th semester had earned high score [Figure 1]. But when we compared with score of 8th semester, a relative drop was seen in the proportion of students (52.7%) in high score category. Also, there was one student who had earned a low score (severe depression) in the 8th semester. A sizable amount of students (33.8%) were with depression.

Up to the age of 23 yrs, majority of the students (63.6% to 68.1%) had a high score. But among students of age > 23 yrs most students had middle score (moderately depressed). However, the number of students of age > 23 yrs is very less. Students of both genders had a similar pattern of score distribution. Majority (65.9%) had a high score (normal).

Students of all religions had a similar pattern of score distribution. But students of Christianity and others had relatively more percentage (41.2% to 45.5%) of middle score (moderately depressed). It should be worthily noted that the number of students in these category was low.

Students in all categories of residence (hostels and homes) had a similar pattern of score distribution. Majority fell in high score category (normal).

There was little difference in scores on the basis of mode of travel to college

(Mode of travel: Foot / car / taxi / Bus / Train / Bus and Train) ($\chi^2 = 1.53$, df = 3, p = 0.67). The difference was not statistically significant.

Students of all income groups have a similar pattern of score distribution. Students of income category IV showed a relatively higher proportion of high score ($\chi^2 = 4.52$, df = 3, p = 0.21). The difference in the high scores among the categories (socio-economic class) was found statistically not significant.

Students coming from a Nuclear family had a relatively higher proportion of high score.

The difference in the high scores among the two categories (nuclear and joint families) was found statistically not significant (Z = 1.66, p > 0.05, OR = 1.6, Cornfield 95% CI = 0.90 < OR < 3.14, $\chi^2 = 3.08$, p = 0.0794735).

The difference between high scores in presence or absence of hobby was statistically significant (Z = 1.97, p < 0.05, OR = 1.50, Cornfield 95% CI = 0.99 < OR < 2.26, $\chi^2 = 4.04$, p = 0.0443895)

Those who don't have a hobby had a relatively higher proportion of middle score (moderately depressed).

Students with siblings and without siblings were found with a similar pattern of score distribution. Most students had a high score (normal), whether they had sibling(s) or not ($\chi^2 = 1.58$, p = 0.20). The difference was not statistically significant.

Those who suffered from any disease/disability had a higher percentage of middle score (moderately depressed) ($\chi^2 = 1.03$, p = 0.31). The difference was not statistically significant.

Discussion:

With the advent of globalization and economic boom, the developing nations are also slowly moving to life style diseases. More and more competition in every field has threatened the economic stability of an individual, thus leading to stress and psychological morbidity. This competition is on continuous rise in medical field and this has lead to stress

which is impairing the quality of life in medical students. This negative effect of long and tiring medical education on the psychological status of students have been shown in several studies [10] As the studying class increases, the prevalence of depressive disorders increased significantly. In our study, students of 2nd, 4th and 6th semester had high scores 222, while those in the 8th semester had low scores without any statistical significance; similar to another study by Souza et al among undergraduate nursing students where the scores did not differ according to year of training.[9] However, in that study, fourth-year group obtained significantly lower scores than the students from all the other years of training. Another studies on HQOL of medical students by Paro et al,[3] Karaglu et al,[11] Supe et al[13] and Kumar et al [16] revealed similar result where students in years 2, 3, 4 and 6 had lower scores of HRQL compared with the incoming year 1 group. This may be due to greater fear of not attaining their goal of being a doctor; may be due to excessive load of both para-clinical and clinical subjects as compared to only preclinical subjects in first year or may be due to competition for the postgraduate seats. However another studies by Singh et al at North India, [14] Inam et al at Ziauddin Medical University [15] and Sidana et al at Delhi [17] revealed opposite picture where the scores were significantly lower in 1st year and 2nd year, as compared to 3rd and 4th year students.

In this study no gender bias of PGWB score was found; probably indicating the emerging trend of social empowerment amongst females and the increased self-esteem, similar to other studies, among medical students by Mahawar et al at Indore,[10] Supe et al at Mumbai[13] and Sidana et al at Delhi[17] The finding was dissimilar to other studies where female students had significantly lower scores than male.[3, 9, 14, 15] However, one study among medical students

revealed opposite result, where male students were more depressed.[11]

In the present study, students of all income groups had a similar pattern of score distribution. There was no statistically significant correlation between PCMI and the majority of the domains and components of the PGWB which was similar to a study carried on undergraduate medical and nursing students. [3, 9, 15]

Staying away from home did not affect the scores in our study suggesting possibly that social support from peers was adequate to compensate for the loss of social support from families amongst hostel residents. Our study result was consistent with the findings of other studies [3, 9, 13, 15, 16, 18] among medical and nursing students. In contrast to this, a study by Pekmezovic T et al among university students showed different result where students who lived with parents had statistically significantly higher scores.[12]

In this study, there was no significant statistical difference in the scores on the basis of mode of travel to college. Mumbai study by Supe et al [13, 18] obtained similar result.

There was no significant difference amongst subjects from nuclear or joint families in the present study probably suggesting that the nuclear families can provide the necessary social support to the individuals and that support which was previously provided by various members of joint families was found dissimilar with result of another study [19] where students from joint family were less depressed compared to those from nuclear family.

Students had high scores irrespective of presence of siblings in the present study, which again probably suggests that social support in present times is probably provided by other family members and peers. This was comparable to findings of some prior Indian studies. [15, 17, 18]

There was a significant statistical difference between students with no hobby or with hobbies. This probably suggests that hobbies may to some extent help in countering the onset of depression in medical students. Sometimes depression co-exists with a major illness or is a reaction to the illness.[20] But our study revealed no such co-relation.

Conclusions:

Students of all semesters had a similar pattern of score distribution. Among students of age > 23 years, moderate depression was found in higher ratio. Further studies are suggested to investigate the possible contribution of active teaching-learning methodologies and continuous psycho-pedagogic support, aiming for a better formation and the improved professional performance of those students in risk situations.

Limitations:

The limitation of this cross-sectional study was inability to draw cause-effect associations between the studied variables. No data on psychological status of students before entering medical school and population based data in India were available to compare our results with general population. Due to time constraint, perceptions of some of the students could not be obtained. Unavailability of some students forced us to shrink the sample size. Field of data collection had to be narrowed down to keep the questionnaire short. Identification and approach for treatment of the depressed student was not made.

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Table 1: Distribution of students according to residence and PGWB score (n = 493)

Score	Residence				Total
	Hostelite (%)	Day scholar			
		Mode of transportation			
		Public (%)	Private (%)	Walking (%)	
Low		1 (0.7)			1 (0.2)
Middle	101(32.6)	50 (34.5)	6 (40.0)	10 (43.5)	167 (33.9)
High	209 (67.4)	94 (64.8)	9 (60.0)	13 (56.5)	325 (65.9)
Total	310 (100.0)	145 (100.0)	15(100.0)	23 (100.0)	493 (100.0)

Table 2: Distribution of students according to socio-economic class and PGWB score (n = 493)

Socio-economic class (Category)	Score			
	Low (%)	Middle (%)	High (%)	Total (%)
Class I	1 (0.6)	83 (37.6)	136 (61.8)	220 (100.0)
Class II	0	41 (31.3)	90 (68.7)	131 (100.0)
Class III	0	14 (37.8)	23 (62.2)	37 (100.0)
Class IV	0	13 (21.0)	49 (79.0)	62 (100.0)
Class V	0	16 (37.2)	27 (62.8)	43 (100.0)
	1 (0.1)	167 (33.9)	325 (66.1)	493 (100.0)

Table 3: Distribution of students according to type of family and PGWB score (n = 493)

Family	Score			Total
	Low	Middle	High	
Nuclear (%)		145 (32.8)	297 (67.2)	442 (100.0)
Joint (%)	1 (1.9)	22 (43.1)	28 (55.0)	51 (100.0)
Total (%)	1 (0.20)	167 (33.9)	325 (65.9)	493 (100.0)

Table 4: Distribution of students according to hobby and PGWB score (n = 493)

Hobby	Score			Total
	Low	Middle	High	
No (%)		63 (40.4)	93 (59.6)	156 (100.0)
Yes (%)	1 (0.3)	104 (30.9)	232 (68.8)	337 (100.0)
Total (%)	1 (0.2)	167 (33.9)	325 (65.9)	493 (100.0)

Table 5: Distribution of students according to presence of siblings and PGWB score (n = 493)

Siblings	Score			Total
	Low (%)	Middle (%)	High (%)	
No		62 (30.8)	139 (69.2)	201 (100.0)
Yes	1 (0.3)	105 (36.0)	186 (63.7)	292 (100.0)
Total	1 (0.2)	167 (33.9)	325 (65.9)	493 (100.0)

Table 6: Distribution of students according to any disease/disability and PGWB score (n = 493)

Disease	Score			Total
	Low (%)	Middle (%)	High (%)	
No	1 (0.2)	146 (33.1)	294 (66.7)	441 (100.0)
Yes		21 (40.4)	31 (59.6)	52 (100.0)
Total	1 (0.2)	167 (33.9)	325 (65.9)	493 (100.0)

" You cannot achieve environmental security and human development without addressing the basic issues of health and nutrition."

Gro Harlem Brundtland

"I've always believed fitness is an entry point to help you build that happier, healthier life. When your health is strong, you're capable of taking risks. You'll feel more confident to ask for the promotion. You'll have more energy to be a better mom. You'll feel more deserving of love."

Jillian Michaels