ORIGINAL ARTICLE
MEDICAL STUDENTS' PSYCHOLOGICAL WELLBEING AND THEIR OVERALL ACADEMIC PERFORMANCE —A CORRELATIONAL STUDY

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Background: This study examines the undergraduates building the best of institutional situation by rising from it or seeing it in a more encouraging light. The objectives of the study were to measure the correlations of psychological wellbeing of medical students with overall academic performance in different institutions, and to compare medical students' psychological wellbeing scores with respect to their medical institutions and gender. **Methods:** This study was conducted from January to June 2018 in two different medical institutes. After the ethical approval from the institutions a purposive non-probability sampling was done. A quantitative correlational descriptive design was used to collect data through self-reporting 42-item Ryff Psychological Wellbeing Scale (RPWBS). This data was checked for normality by applying Kolmogorov-Smirnov (K-S test) test, and statistical analysis was calculated through SPSS-21. **Results:** The comparison of the median of the Ryff psychological wellbeing subscales shows that autonomy (med=21.00, IQR=7–21) was the highest median. Spearman's correlation for institute X showed that the correlation of overall academic performance with PWB subscale was strongly positive (+1) and greater than scores in institute Y. In both institutes the relationship is significant ($p<0.01$). Comparative analysis shows that institute Y had highest values ($p<0.000$). **Conclusion:** More attention assigned considering every students as an individual case.

Keywords: Psychological wellbeing, Students, Academic performance, Institutional environment

INTRODUCTION

Various extensive conceptualizations of welfare have been suggested. That raises the question how individual wellbeing has to be understood.[1] Investigation in wellbeing has been developing in recent times in the context of wellbeing of an overall performance.[2] The interplay between psychological wellbeing (PWB) and performance of medical students has to be explored.

The World Health Organization (WHO) defines psychological wellbeing is 'a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their connection to salient features of their environment'.[3] According to Brouzos and fellows 'wellbeing is a forceful impression that consists of personal, shared, and psychological measurements in addition to health associated behaviours'.[4]

For medical students an overall performance means their 'knowledge, attitude and skills' assessment as a complete task.[5] This is further supported by Santra and colleagues in their study they analyzed the relations between continue assessment and overall performance, and stated that 'This relationship is not entirely linear which infers that a number of variables may have predisposed the outcome. Therefore, importance should be rested upon the evaluation of attitudes, communication-skills, interpersonal-skills, and ethics in order to increase the performance level'.[6]

In Pakistan, all medical institutions have nearly similar assessment structures assenting with the 'Pakistan Medical and Dental Council'.[7] Exposure to training in medical college is a great experiment as far as emotional and social growths are concerned.[8]

Learners' psychological wellbeing (PWB) has multiple links with the academic performance. Yet most of the studies on psychological wellbeing have not cited the correlations of six dimensions (of PWB) with overall educational performances. Such larger scales studies were needed in Pakistan region to assess this relation. This study fills the gap in the empirical understanding of the relationships between medical students' psychological wellbeing and overall academic performance. Figure-1 shows concept of study.
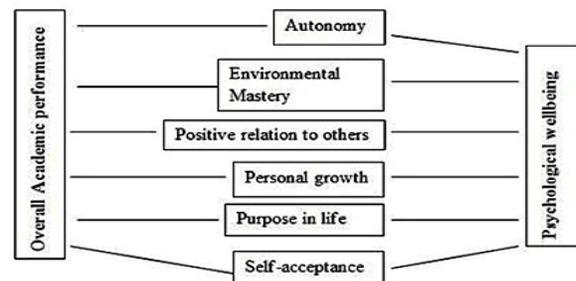
Figure-1: Conceptual framework of study

METHODOLOGY

This was a cross-sectional, descriptive and correlational study that used a purposive sample from two institutions. The IRB approval had been granted from both institutions prior to data collection.

Medical Institution X used numerous assessment approaches including short essay questions (SEQ), multiple choice question –A type (MCQs), observed structure practical examination (OSPE), observed structure clinical examination (OSCE) and oral (viva) examination (OE).

Medical Institution Y has friendlier atmosphere, as the organization provides carrier guidance, research assistance and personal development through a formal mentorship program. A constructive frequent feedback is running through communication skill labs which facilitate learners to excel in doctor-patient communication. Beside the above mentioned assessment tools, institution Y uses SLICE (structured long interview and clinical examination) tool to assess long case in clinical assessments.

A purposive non-probability sampling design was used from January to June 2018 from institution X and Y MBBS students who were enrolled in 1st year through 5th year. The total population sample was 1,170 (610 students from institution X and 560 from institution Y). Out of 610 students from institution X a total of 205 (39.43%) were male and 315 (60.57%) were female and 90 students did not volunteer. Out of 560 students from institution Y a total of 220 (45.83%) were male and 260 (54.16%) were female and 80 students did not volunteer to participate.

This study assumed that academic performance was not affected by impairments in visual, auditory or reduced mobility. Therefore students with impairments (visual, auditory and reduced mobility) were also included in this study on the basis of equality standpoints.

The 42-items Ryff battery was a direct and reasonably small survey that measures the psychological element of wellbeing. It was an independent variable developed by Ryff.[9] Each sub-scale had 7-item in six dimensions of psychological wellbeing (i.e., 7 items per dimension) and dispersed in a mixed pattern. RPWBS is an independent variable with six-factors. Items in various subscales are:[9]

1) Autonomy: items# 1, 7, 13, 19, 25, 31, 37
2) Environmental mastery: items# 2, 8, 14, 20, 26, 32, 38
3) Personal Growth: items# 3, 9, 15, 21, 27, 33, 39
4) Positive Relations: items # 4, 10, 16, 22, 28, 34, 40
5) Purpose in life: items # 5, 11, 17, 23, 29, 35, 41
6) Self-acceptance: items # 6, 12, 18, 24, 30, 36, 42

A small debriefing about the research for the participation in this study was given to all medical students. The total time allotted to fill these questionnaires was 20 minutes during their break time. A quality rheostat round is done after administration of self-report survey to check whether all part-takers completed the document.

Checking data through test of normality was done using Shapiro-Wilk test and Kolmogorov-Smirnov Z test ($p < 0.05$). The Cronbach's alpha for this PWB item was 0.827 and 0.941 for institution X and Y respectively. It was important to find any predicting factor that manipulates the correlation between PWB and performance scores therefore, a regression analysis consider Baron and Kenny procedure of regression is applied.[10]

Table-1: Baseline data (pilot study) of PWB subscale to check the normality of sample (n=1,000)

| PWB Subscale | Tests of Normality | | | | | |
| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
	Statistic	df	p	Statistic	df	p
Autonomy	0.315	1000	0.000*	0.828	1000	0.000*
Environmental mastery	0.225	1000	0.000*	0.870	1000	0.000*
Positive relation	0.269	1000	0.000*	0.861	1000	0.000*
Purpose in life	0.224	1000	0.000*	0.873	1000	0.000*
Personal growth	0.217	1000	0.000*	0.868	1000	0.000*
Self-acceptance	0.225	1000	0.000*	0.877	1000	0.000*

a. Lilliefors Significance Correction, *Significant

RESULTS

A total of 1,000 students participated in this study. Three students from institute X were found with disability, two had auditory and one had physical impairment. Only two students with physical disability were found in institution Y. Students were aged 17–26 years (21.26±2.078 years).

The descriptive statistics of age distribution within the sample showed maximum number of students in 22 years (n=273, 27.3%) and the minimum number of students fell into 26 years of age (n=13, 13%).

Concerning gender descriptive breakdown, it showed that the highest participation was from female students (57.5%) compared to male students (42.5%). However males had high performance scores (81%) with mean value of 73.59±9.81% compared to females performance scores (77%) with mean value of 69.92±8.54%. Results demonstrated differences among institutions only where institute Y had highest performance score in 2nd year MBBS (75.34±8.97) compared to institution X performance score of 2nd year MBBS (72.50±9.19).

Regarding descriptive of psychological wellbeing, the calculation was divided into 3 categories; high, moderate, and low. The results indicated highest percentage on personal growth (48%) dimension of PWB scale and lowest percentage on positive relation with others (15%) dimension of PWB scale. The skewness and kurtosis for each subscale variable was

checked for distribution and normality. The results are skewed and far from normality (Table-2).

While environmental mastery, positive relation, purpose in life, personal growth and self-acceptance had same median (14.00) with a range of 14–21 respectively. The overall median (21.00) for the PWB subscale in both institutes was same with a range of 7–21. The comparison of the median of the Ryff psychological wellbeing subscales in institution X shows that autonomy (med=21.00, with a range of 7–21) was the highest median.

When calculating the overall performance scores correlations with PWB subscale on complete data the results were remarkable (Table-3). A significantly negative association (-1) was found between sessional year MBBS and PWB correlation with overall performance score. This indicates that students' seniority level (aging) is not related to their academic performance and PWB level.

The mean ranks of these two institution results through Mann-Whitney U test, revealed that the values were higher in institute Y compared to institution X ($p<0.05$) (Table-4a). Institutions had non-significant difference on scores of students PWB environmental mastery ($p=0.496$) subscales. However institutes had less differences on students' PWB positive relation with others ($p=0.075$) subscale which shows weak relationship with overall performance scores ($p>0.05$) (Table 4b).

This suggests that students' PWB of these domains had positive (+1.00) and strong correlations with academic-performance. The results also indicated that in both institutions mean ranks of PWB level (in all six dimensions) for male students were significantly ($p<0.05$) higher than mean ranks of PWB level (in all six dimensions) for females students. These results suggest its significant impacts on performance.

Taking gender as confounding, linear regression was applied. Figure-2 and 3 displays the two models outcomes of significant ANOVA ($p<0.05$) and coefficient ($p<0.01$).

Table-2: Student' psychological wellbeing, minimum, maximum, mean, skewness and kurtosis

Subscale	min	max	Mean±SD	skewness	kurtosis	min	Max	Mean±SD	Skewness	kurtosis
			Institution X (n=520)					**Institution Y, (n=480)**		
Age (Yrs)	17	26	21.29±2.07			17	26	21.22±2.08		
Autonomy	7	35	17.51±7.95	-0.005	-0.951	7	35	19.46±7.95	-0.611	-0.316
Environmental mastery	7	35	15.72±6.30	0.132	-0.499	7	35	15.77±6.30	0.766	0.756
Positive relation	7	35	15.15±6.18	0.477	0.045	7	35	15.92±6.18	0.763	0.880
Purpose in life	7	35	16.24±6.26	0.328	0.057	7	35	18.25±6.26	0.248	0.467
Personal growth	7	35	17.15±6.51	0.376	0.332	7	35	18.38±6.51	0.538	0.625
Self-acceptance	7	35	17.51±6.19	0.263	-0.107	7	35	18.38±6.19	0.432	0.525

Table-3: Correlation between PWB level and overall performance scores in both institutions

PWB subscale	Spearman's rho (rs)	p
Autonomy	0.497	0.000**
Environmental mastery	0.535	0.000**
Positive relation	0.787	0.000**
Purpose in life	0.899	0.000**
Personal growth	0.918	0.000**
Self-acceptance	0.826	0.000**
Sessional years MBBS	-0.011	0.728

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

Table-4a: Mann-Whitney U test showing differences on mean ranks of PWB six dimension scores and performance across institutions group

| PWB subscale	Mean Ranks		p
	Institution X (n=520)	Institution Y (n=480)	
Autonomy	465.61	538.30	0.000*
Environmental mastery	506.15	494.38	0.496
Positive relation	485.96	516.25	0.075
Purpose in life	458.13	546.40	0.000*
Personal growth	477.73	525.17	0.006*
Self-acceptance	482.50	520.00	0.028
Performance score	471.75	531.64	0.001*

*Significant

Table-4b: Mann-Whitney U test showing differences on mean ranks of PWB six dimension scores and performance across gender group

PWB subscale	Mean Ranks		p
	Male n=425	Female n=575	
Autonomy	546.47	466.52	0.000*
Environmental mastery	545.74	467.06	0.000*
Positive relation	562.74	454.49	0.000*
Purpose in life	552.02	462.42	0.000*
Personal growth	563.70	453.79	0.000*
Self-acceptance	555.30	460.00	0.000*
Performance score	571.59	447.96	0.000*

*Significant
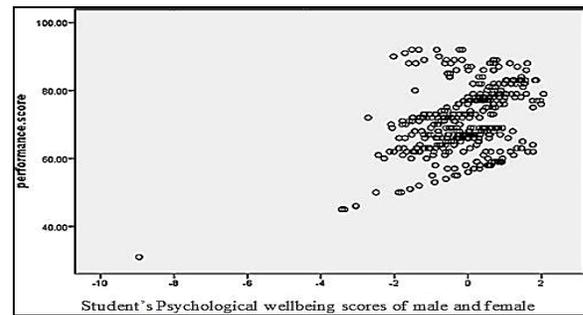
Figure-2: Showing institution X, PWB sores of male and female students
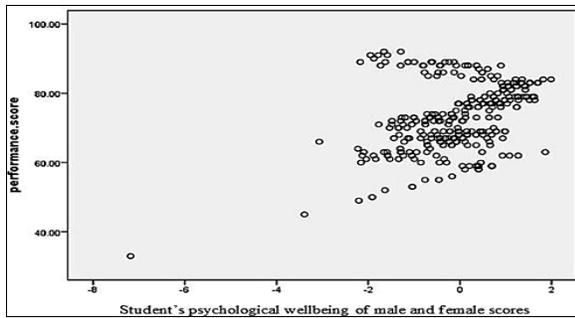
Figure-3: Showing institution Y, PWB scores of male and female students

DISCUSSION

This study shows that student psychological wellbeing is strongly related to their overall performance and this relationship is significantly different in both institutions ($p<0.01$).

The current study reported similarities with relevant studies. The total sample size was 1,000 students comprised of 425 males and 575 females, and all of them were enrolled in MBBS undergraduate program. This sample size (1,000) is nearly similar to the sample size (1778) from the study conducted on population sample in 2010.[10] The data is sufficient to validate or negate the results of previous research in the same domain. Students ranged between 17 years minimum age to 26 years maximum age with mean aged 21.26±2.078. The maximum participation is from female students (57.5%) which is similar to demographic results of study conducted on Mexican undergraduate students published in 2017.[11] The coefficient of Cronbach's alpha of Ryff PWB scale is consistent with different studies, but again a high internal reliability of the 42-item PWB scale is seen in this study sample (Cronbach's alpha coefficient is 0.90). This results endorsed the outcome of Cronbach's alpha (0.99) found in another empirical study of Ryff 'PWB subscale published in 2017.[12] It is noted in this study that the highest performance score (77.20±10.18), is seen in 19 year of age group (49%) and difference between overall performance of students in both institute is only seen in second year MBBS sessional year where students of institute Y scored higher (75.34±8.97) than institute X scores (72.50±9.19). This result draws a consideration towards the present matter that students' opinion and attitude concerning the assessment methodology is according to the current need of time. This study rejects the outcomes of the former studies in which strong relationship is seen in senior student PWB scores with overall performance compared to juniors.[13,14] These results proposed that different institutions play different role in the assessment methods of their medical students by means of constant exposure to small assessment practice such as peer assessment, DOPS and mentorship program as

practicing in institute Y which makes them more focused and responsible towards their profession, therefore impacts differently on student's psychological wellbeing in preparing students for medical practice in future.[15]

Looking into the results of regression analysis in this study, it is found that the results are homogeneous with other studies on many things. Sample size, distributed in two groups, females participation is more than males, 95% confidence interval is acceptable and the correlation of PWB six dimension among both groups are well ($p=0.000$) and equally significant ($p<0.05$)[16]. Four (Personal Growth, Purpose in Life, Self-Acceptance, and Environmental Mastery) of six dimensions are overlapping or inseparable[17], and representing as one dimension. On the other hand results of regression on gender shows no correlation with PWB and performance scores and was completely different from the study[18] published in 2015 which predicts positive and important correlation ($p<0.01$) and influential effect of demographic factors on PWB[19].

This study concludes a few implications for teachers, leaders, and medical educationist. These are:
- More attention is to be assigned considering every student as an individual case.
- Medical Institutions should determine what future strategies and planning need to be undertaken to tackle students' psychological wellbeing and satisfaction at the grass root level.

STRENGTH AND IMPACT OF THE STUDY

This study is valuable in accepting the influential effects of psychological wellbeing on academic success. The current study emphasized the matter-of-fact related to quality and frequency of assessment methodology processing among different institutions which may affect students' perceptions of assessment.

LIMITATION AND VENUES FOR FURTHER RESEARCH

Only 5 out of 1,000 students are disable participants and, as expected, their presence is not visible in the study outcomes. This study ends after the first combine block assessment; if it would extend to whole one year cohort and considering correlation of different assessment methods with student's psychological wellbeing, the results would be more noteworthy.

CONCLUSION

This study brings an insight on institutional role in students overall performance. The findings suggest the relationship between PWB and academic performance is not linear.

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