

A Comparative Study of Impact of Education on Occupational Performance and Quality of Life in Professional Science Courses

Harshal Dixit¹, Pooja Khemani², Leena A. Deshpande³

¹III M.O.Th (Neurosciences), O.T School & Training Centre, Lokmanya Tilak Municipal Medical College & General Hospital, Dr. Babasaheb Ambedkar Road, Sion (West), Mumbai, ²B.O.Th, ³Assistant Professor, O.T School and Centre, Government Medical College, Nagpur

Abstract

Background: Education has become one of the clearest indicators of life outcomes such as employment, income and social status, and is a strong predictor of attitudes and well-being. The top most among professional oriented courses are Medicine and Engineering. Medical Education is perceived as being stressful, and a high level of stress is caused by strenuous medical programs, which may have physical and psychological effects on the well-being of medical students. Engineering students take half-yearly examinations, as compared to the annual examinations taken by medical students which leads to a higher prevalence of stress among engineering students. The aim is to compare and study the Impact of Education on Occupational Performance and Quality of Life in Medical students and Other Science Professional Course (Engineering).

Method: 135 individuals (70= medical field & 65= engineering field) were screened from different colleges of Nagpur city. A convenient sample of 100 students (male & female) from different colleges were divided into 2 groups of 50 each - Group A: Medical stream and Group B: Engineering stream. The subjects were asked to fill up the OPHI-II and WHOQOL-BREF questionnaire.

Results: On the OPHI-II scale, the engineering students have better occupational identity and occupational settings as compared to the medical students whereas the occupational competence showed no significant difference in both the fields. On the WHO Quality of life-BREF scale, the physical health and psychological domains shows no significant difference in both the fields; whereas the social relationship and environment domains show significant difference in both the fields.

Conclusion: There is an impact of education on the Occupational Performance and on Quality of Life in students of both the fields. On the OPHI-II scale, engineering students have better occupational identity and occupational settings in comparison to the medical students. On the WHOQOL-BREF scale, engineering students have better quality of life in social relationships and environmental domain in comparison to the medical students.

Key words: OPHI-II, Occupational Performance, Quality of Life, Education stream

Corresponding author:

Dr. Harshal Dixit

III M.O.Th (Neurosciences)

Address: Plot no. 19, 4th floor, Shiv Niwas building,
Opp. Mahesh Tutorials, Sion Circle, Sion West,
Mumbai - 400022

Introduction

Education has become a one of the clearest indicators of life outcomes such as employment, income and social status, and is a strong predictor of attitudes and well-being. Education enhances a person's social identity. The top most among professional oriented courses are

Medicine and Engineering.

Medical Education is perceived as being stressful, and a high level of stress is caused by strenuous medical programs, which may have physical and psychological effects on the well-being of medical students. Medical students are overloaded with a tremendous amount of information. They have a limited amount of time to memorize all the information studied. The overload of information creates a feeling of disappointment because of the inability to handle all the information at once and succeed during the examination period. Over 55,000 students graduate as doctors every year.⁽¹⁾ Many medical students struggle with their own capacity to meet the demands of medical curriculum. The students have to face life-threatening situations and also attend the clinical postings and handle patients from third year itself which is assumed to affect the occupational performance and quality of life of the students.

Engineering is the application of scientific knowledge and mathematical methods to practical purposes of the design, analysis, or operation of structures, machines, or systems.⁽²⁾ Engineering students take half-yearly examinations, as compared to the annual examinations taken by medical students. The higher frequency of examinations lead to a higher prevalence of stress among engineering students. All India Council for Technical Education reports, 60% of 1 million engineers graduate every year.⁽¹⁾ The final year students face various stressors like getting good campus placements, train well for job market, enhance communication skills and up-to-date knowledge about new technology, more burdens of mini- & mega-projects that have to be submitted in the final year which eventually affect the occupational performance and quality of life of the students.

Occupational Performance is the ability to perceive, desire, recall, plan and carry out role, routines, tasks and sub-task for the purpose of self-maintenance, productivity, leisure and rest in response to demands of the internal and/or external environment. Occupational Performance Roles are patterns of occupational behaviour composed of configurations of self-maintenance, productivity, leisure and rest occupation. There are various standardised scales for the evaluation of occupational performance, out of which Occupational Performance History Interview (OPHI-II) Version 2.1 is

the latest scale.⁽³⁾⁽⁴⁾

The Occupational Performance History Interview (OPHI-II) Version 2.1⁽³⁾⁽⁴⁾ is based on Model of Human Occupation. It is a semi-structured interview which is organized into the following thematic areas:

- Occupational Roles
- Daily Routine
- Occupational Settings (Environment)
- Activity/Occupational Choices
- Critical Life Events

The second part of the OPHI-II is composed of the three rating scales. They are:

- **Occupational Identity Scale-** measures the degree to which a person has internalized a positive occupational identity.
- **Occupational Competence Scale -** measures the degree to which a person is able to sustain a pattern of occupational behaviour that is productive and satisfying.
- **Occupational Settings (Environment) Scale -** measures the impact of the environment on the client's occupational life.

WHO defines Quality of Life as individuals' perception of their position in life in the context of the cultural and value systems in which they live and in relation to the goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.⁽⁵⁾

There are various standardised scales to assess the quality of life, some of which are disease specific, health related, etc. Whilst the WHOQOL-100 allows a detailed assessment of individual facets relating to quality of life, it may be too lengthy for some uses, therefore WHOQOL-BREF has been developed to look at domain level profiles which assess quality of life. The structure of the WHOQOL-BREF focus on a four domains solution: Physical, Psychological, Social Relationships, Environment.⁽⁵⁾

Stress is a complex, dynamic process of interaction between a person and his/her life. Although it is a stimulus and response, it is a process in which we perceive and cope up with threats and challenges around us.

Methodology

Design:

Type of Study: A Comparative Study

Inclusion Criteria:

1. Both Male and Female
2. Age Group [21-27yrs]
3. Medical and engineering students of 3rd and Final year, Trainees and students pursuing PG course

Exclusion Criteria:

1. Students from other professional stream
2. Participants who are under treatment or were taking medications of any Psychiatric illness.
3. Students unwilling to participate in the study

Materials:

Process:

For collection of normative data 135 individuals (70= medical field & 65= engineering field) were screened from different colleges of Nagpur city. A sample of 100 individuals (50 each from both science professional fields) were included in the study. With the ethical consent, complete details of the purpose of the study was explained to the individual. The subject was selected only if they fulfilled the inclusion criteria needed for this study. The subjects were asked to fill up the OPHI-II and WHOQOL-BREF questionnaire.

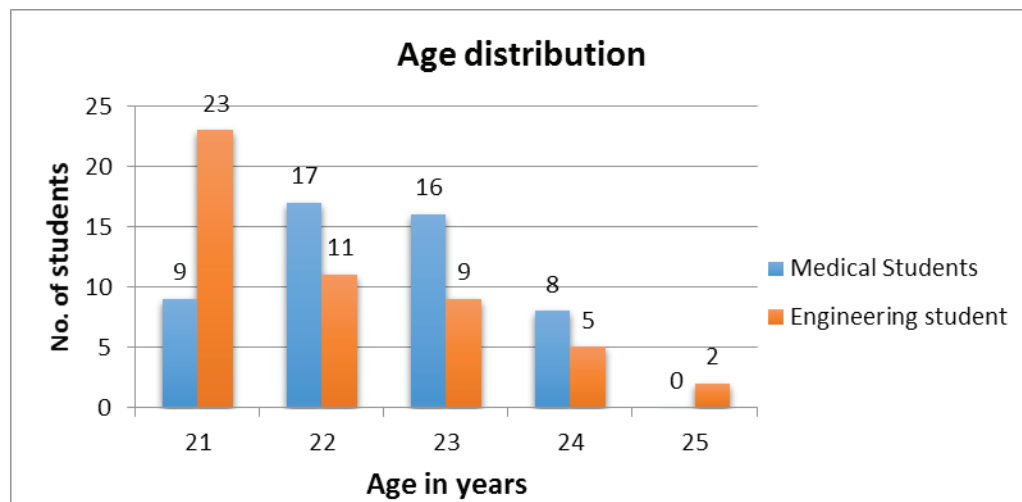
A convenient sample of 100 students (male & female) from different colleges were divided into 2 groups of 50 each-

Group A: Medical stream

Group B: Engineering stream

Results and Discussion

This study was conducted in Occupational Therapy School and Centre, GMCH, Nagpur with a random sample of 100 normal individuals from different colleges of Nagpur city.



Graph no.1: Age distribution of medical and engineering students

In Graph 1, among the engineering students, 46%, 22%, 18%, 10% and 4% were of 21,22,23,24 and 25 years of age respectively; whereas among the medical students, 18%, 34%, 32% and 16% were of 21, 22, 23, and 24 years of age.

Table No.1: Comparison of Occupational Performance History Interview scores

OPHI-II Sub scales	Medical student		Engineering student		t-value	p-value
	Mean	SD	Mean	SD		
Occupational Identity	58.1	10.79	64.74	14.0	2.6553	0.0093,HS
Occupational Competence	59.2	12.59	64.24	15.08	1.6629	0.0995,NS
Occupational Settings	58.96	13.70	72.24	18.73	4.0444	0.0001,HS

Table no.1 describes the **comparison** of all the three components [Occupational Identity, Occupational Competence and Occupational Settings (Environment) scales] of the **Occupational performance history interview-II** of medical and engineering student.

The engineering students have better **occupational identity** in which the t-value is 2.6553 and p-value is 0.0093 as compared to the medical students. The reasons can be apart from personal problems, the medical students have huge syllabus and annual examination, long clinic and college hours, difficulty in understanding subjects, no proper lunch breaks, lack of sleep due to night shifts and latenight studies which affects their attention span, memory, judgement. Clinical presentations and maintaining 80% attendance are the other stressors which add to the poor performance of these students. In engineering, the examination pattern is half yearly, the students have timely assignment submissions, proper college timings with lunch breaks and enough time for preparing for their exams. The study by *Vidya D. C., Swetha N., Thirunaaukarasu D., Gladius Jennifer H., Karthikeyan E,* concluded that the prevalence of perceived stress among medical students was 76.8% as compared to 75% of engineering students.⁽⁶⁾ This study

is in accordance with the study by Pratibha M. Vaidya and K.P. Mulgaonkar, published in The Indian Journal of Occupational Therapy: Vol. XXXIX: No. 1 (April 2007-July 2007); which concluded that there is considerable amount of stress and anxiety in medical students.⁽⁷⁾

The engineering students also have a better occupational settings in which the t-value is 4.0444 and p-value is 0.0001 as compared to the medical students. The reasons being that medical students have to work in compromised hospital environments and for long hours, getting exposed to various infectious diseases, lack of time management leads to less interaction with the family, friends and social gatherings, no time for their leisure hobbies. The study by Michal Avrech Bar, and Tal Jarus, published in International Journal of Environmental Research and Public Health. 2015 Jun: 12(6): 6045-6065; concluded that Occupational performance affects mental health and life satisfaction. The research also indicates that social support has a direct effect on physical health and life satisfaction and an indirect effect on mental health.⁽⁸⁾ The results also supports many theoretical models that state that the environment affects participation and occupational performance of a human being.⁽⁹⁾

Table No. 2: Comparison of WHO Quality of life- BREF of medical and engineering students.

Domain	Medical student		Engineering student		t-value	p-value
	Mean	SD	Mean	SD		
Physical health	66.64	11.56	63.0	14.40	1.3933	0.1667,NS
Psychological	68.64	12.41	66.08	10.61	1.1081	0.2705,NS
Social Relationship	63.44	13.35	70.86	15.41	2.5725	0.0116,S
Environment	67.38	13.49	72.96	12.33	2.1579	0.0334,S

Table no. 2 summarizes the mean scores of WHO-QOL BREF of medical and engineering students. The physical health and psychological domains show no significant difference in both the fields with t-value 1.3933 and 1.1081 and with p-value 0.1667 and 0.2705, respectively; whereas the social relationship and environment domains show significant difference in both the fields with t-value 2.5725 and 2.1579 and with p-value 0.0116 and 0.0334, respectively with engineering students having better social relationships and environmental settings. The reasons can be because of various co-curricular activities, cultural/tech fests happening in engineering colleges which give students a chance to showcase their talents and hobbies and also interact with various students from different geographical regions. They all have well structured and organised buildings for their lectures and practicals with latest technologies which adds to their better quality of life. Whereas, in medical students, the lack of sleep, hectic schedules, long clinical postings, etc all makes it difficult to maintain social relationships. A qualitative study by Marcus Henning, Christian Krageloh, et al., showed that the medical students face numerous challenges during their medical journey which affects their quality of life during these years.⁽¹⁰⁾

This in accordance with the article by Mario Ivo Serinolli and Marcia Cristina ZagoNovaretti⁽¹¹⁾ justifies that the effects of socio demographic factors, physical traits, and religious beliefs on the quality of life of medical students may facilitate improvements in physical, psychological, and social support for medical

students at a critical stage in their training, thereby providing tools for student better adjustment to medical school.

Conclusion

It can be concluded that –

1. There is an impact of education on the Occupational Performance and on Quality of Life in students of both the fields.
2. On the OPHI-II scale, engineering students have better occupational identity and occupational settings in comparison to the medical students. The occupational competence were equal among both the fields.
3. On the WHOQOL-BREF scale, engineering students have better quality of life in social relationships and environmental domain in comparison to the medical students.

Limitation:

1. Small sample size.
2. The study was restricted to a specific geographical area (Nagpur city).
3. The study was conducted on a limited age group.

Future scope:

1. A pre- and post-intervention study using various coping strategies to improve occupational performance and quality of life will be more effective.

2. Suggestions to the academic council to modify the current curriculum of the courses.

Conflict of Interest: NA

Source of Funding: NA

Ethical Clearance: Declaration of Helsinki guidelines for medical research were followed for this.

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