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Review Article

# Non Scholastic Qualities of an IMG (Indian Medical Graduates) and their Association with Mental Health among Medical Students During Covid-19 in Tiruchirappalli, Tamil Nadu

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## I N F O

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## A B S T R A C T

*Background:* The study was done to determine whether there is any impact between Non-scholastic qualities and mental health among Indian Medical Graduates.

*Materials & Methods:* It is an Explanatory Mixed Method Study (Quantitative followed by Qualitative) conducted from July 2022 to September 2022 among 424 medical students to assess the non scholastic qualities and their association with mental health.

*Results:* Overall mean score of non-scholastic qualities was found to be 76.44 + 11.13 (75.39 – 77.5) with a minimum score of 41 and a maximum score of 116. Percentile distribution of subjects was at score 68 ($25^{th}$ percentile), 77 ($50^{th}$ percentile), and 84 ($75^{th}$ percentile). There was no statistically significant association between non-scholastic qualities and the risk for mental health illness among the study participants. Previous history of psychiatric illness and use of psychoactive substance was found to be significantly associated with the risk of mental health illness

*Coclusion:* There is no direct association between the non-scholastic quality and mental health, however prior history of mental health and usage of psychoactive substance have a strong association with poor non scholastic qualities. Ignorance, Personality development, Stress relieving, inclusiveness in curriculum and its association with mental health were the perspectives of the medical graduates.

**Keywords:** Mental Health, Medical Graduates, Psychoactive Substances, Psychiatric History

## Introduction

Non-scholastic qualities are the general abilities in medical profession that are not peculiar to medicine but are necessary for the medical professionals to be competent. These qualities are enhanced in the later performance of the medical students.[1,2.]

These qualities majorly comprise of three domains- individual attributes, interpersonal attributes and communication attributes. These help the medical students to become a compassionate physician who can understand what the patient goes through than giving them a mere treatment and helps them to develop better relationship

with peer professionals.[3] National Medical Council (India) has changed the curriculum as CBME (competency-based medical education) since 2019. Their aim is to produce an Indian Medical Graduate (IMG), who are not only contemplated to have good knowledge (teaching the students as well as treat patients) but also develop a better attitude towards their peers and patients in understanding their pain so that, they can effectively and appropriately act as first contact physician. [4] During lockdown, to continue the process of teaching most of the medical institutions opted for E-learning using various platforms like Zoom, WebEx, Google meet, pre-uploaded Youtube videos and Cisco which made the medical students feel incompetent since they were learning without any practical experience. [6,7]Having mental sanity was very essential during Covid-19 lockdown as there was minimal to no interaction between their peers.[6,7]

Thus this study was done to determine whether there is any impact between Non- scholastic qualities and mental health among Indian Medical Graduates. to assess the non- scholastic activities of the medical students following Covid-19 pandemic,to find out the association of the non-scholastic activities with mental health following Covid-19 pandemic and to explore the perceptions of non-scholastic activities of medical students following Covid- 19 pandemic.

## Materials and Methods

### Study Design

This study is an Explanatory Mixed Method Study (Quantitative followed by Qualitative)

### Study Period

The study was conducted from July 2022 to September 2022

### Sample Size

This study was conducted among medical students of a tertiary care medical institution in Tiruchirappalli, Tamil Nadu.

Using the standard deviation of the mean scholastic score (3.27) in a previous study done by Kumar SG et al [5] and assuming 10% non - response rate, the minimum estimated sample size was found to be 424.

### Inclusion Criteria

All medical college students of 1st, 2nd and 3rd year was included in the study.

### Exclusion Criteria

Students who were absent during the time of survey and not willing to participate.

### Ethical Clearance

Institutional Ethics clearance was obtained duly before starting the study. Written/digital informed consent was obtained from the participants before the survey.

### Data Collection Procedure

Students were selected by purposive sampling. Those who were vocal and willing to participate were selected. The interviews were audio recorded and noted simultaneously by two qualitative methods trained personnel.A sample frame of all students pursuing M.B.B.S in our institution from 1st year, 2nd year and 3rd year was obtained. Universal Sampling method was followed. All students of the three years were included as study participants. All students non scholastic activities was assessed using a pre tested and validated questionnaire. Validation was done initially by internally within the institution by five experts from different fields following which externally it was reviewed by three prominent people in medical education. The dimensionality of the questionnaire (Multidimensional), the general format (Administered by research staff), the item format (Likert scale) and the length of the questionnaire were decided. Any incongruity was resolved by mutual discussion. External experts' opinion were taken into account and it was revised again. The questionnaire was pre-tested among 40 different medical students who were not included in the research analysis. The questionnaire was tested statistically with a Cronbach alpha of $\geq$ 0.7. The questionaaire had 32 variables. Mental Health of the subjects was assessed using a validated tool of "Strength and Difficulty Questionnaire"[6] and it was presented as low moderate and high chances of developing significant symptoms of mental illness.

Five In-depth interviews were conducted among the undergraduate students at convenient time and place for them to find out their perceptions of non-scholastic qualities during Covid-19 pandemic and their approach to an ideal Indian Medical Graduate. Interview was conducted by two qualitative method trained personnel, interview was audio recorded and simultaneously noted down by a researcher for further analysis.

## Statistical Analysis

Manual Content Analysis was done and codes were derived from the transcripts to form a logic to produce a universal claim from observed instances. Then, similar codes were merged together to form establish categories. Any disparity between the two investigators were resolved by mutual discussion.

Statistical Analysis was done through Statistical Package for the Social Sciences (SPSS) version 19.0 [IBM PASW Statistics, Country office Bangalore, India]. Data regarding non-scholastic qualities are presented as the mean and standard deviation in each domain and overall score categories. Assessment of mental health is presented as a categorical variable and expressed in percentages as average, slightly raised and high risk for developing clin-

ically significant symptoms of mental illness. Association between the non-scholastic qualities and mental health (divided into low and high risk categories) were checked after dividing the students who fall above and below the 75th percentile by multiple linear regression. Similarly association between non scholastic qualities and demographic variables were assessed.

## Results

Mean age of the study participants was 20.2 + 1.26 years. Overall mean score of non-scholastic qualities was found to be 76.44 + 11.13 (75.39 – 77.5) with a minimum score of 41 and a maximum score of 116. Percentile distribution of subjects is at score 68 (25th percentile), 77 (50th percentile), and 84 (75th percentile). Furthermore, mean individual score was found to be proportionately lesser than other domains of non-scholastic qualities. Mean of individual attributes was found to be 23.51(Standard deviation is 4.80). Mean of interpersonal attributes was found to be 24.75(Standard deviation is 3.95). Mean of communication attributes was found to be 28.18(Standard deviation is 4.98) [Table 2].

About 1/4th of the medical graduates scored above 75th percentile whereas 21.5% had non- scholastic qualities scores less than 25th percentile. Among 427 study participants, proportion of adolescents who scored high risk (20 – 40) total difficulties scores was 9.6%. In emotional scale domain subjects with average clinically significant problems are 332(77.8%), slightly raised clinically significant problems are 35(8.2%) and high risk of clinically significant problems are 60(14%). In conduct problem scale domain subjects with average clinically significant problems are 318(74.5%), slightly raised clinically significant problems are 51(11.9%) and high risk of clinically significant problems are 58(13.6%). In hyperactivity scale domain subjects with average clinically significant problems are 388(90.9%), slightly raised clinically significant problems are 26(6.1%) and high risk of clinically significant problems are 13(3.0%). In peer pressure scale domain subjects with average clinically significant problems are 270(63.2%), slightly raised clinically significant problems are 120(28.1%) and high risk of clinically significant problems are 37(8.7%). In total difficulties score domain subjects with average clinically significant problems are 309(72.4%), slightly raised clinically significant problems are 77(18%) and high risk of clinically significant problems are 41(9.6%). In prosocial scale domain subjects with average clinically significant problems are 338(79.2%), slightly raised clinically significant problems are 61(14.3%) and high risk of clinically significant problems are 28(6.5%) [Table 3]. There was no statistically significant association between non-scholastic qualities and the risk for mental health illness among the study participants. Previous history of psychiatric illness and use of psychoactive substance was found to be significantly associated with the risk of mental health illness [Table 4].

About five In-depth interviews were conducted among the students until saturation of data was achieved. The Mean Age of the participants were 20.2 + 1.26 years. Around three of them were females and two of them were male participants. A content analysis of the transcripts of all the five in depth interviews were done by two qualitative methods trained experts and a broad theme of perceptions.

**Table 1.Socio demographic details, educational status, previous history of psychiatric illness and psychoactive substances used for the study population**

N=427

| Variables | Male N (%) | Female N (%) |
|---|---|---|
| **Age** | | |
| 18-20 years | 93 (21.8) | 147 (34.4) |
| >20 years | 76 (17.8) | 111 (26.0) |
| **MBBS Phase** | | |
| Phase I | 68 (16.0) | 81 (19.0) |
| Phase II | 39 (9.1) | 97 (22.7) |
| Phase III – Part I | 62 (14.5) | 80 (18.7) |
| **Geographic area** | | |
| Urban | 92 (21.5) | 174 (40.8) |
| Rural | 77 (18.0) | 84 (19.7) |
| **Place of stay** | | |
| Day scholar | 40 (9.4) | 27 (6.3) |
| Hostel | 129 (30.2) | 231 (54.1) |
| **Higher secondary school** | | |
| CBSE | 79 (18.5) | 102 (23.9) |
| ICSE/IGCSE | 2 (0.5) | 6 (1.4) |
| State Board | 88 (20.6) | 150 (35.1) |
| **Previous H/O psychiatric Illness** | | |
| Yes | 14 (3.3) | 9 (2.1) |
| No | 155 (36.3) | 249 (58.3) |
| **Psychoactive substance use** | | |
| Yes | 12 (2.8) | 3 (0.7) |
| No | 157 (36.8) | 255 (59.7) |

*(Figures in parenthesis denotes Percentages)

**Table 2.Mental Health Illness risk for the study population**

N=427

| SDQ domains | Average - clinically significant problems in this area are unlikely | Slightly raised - which may reflect clinically significant problems | High - there is a substantial risk of clinically significant problems |
|---|---|---|---|
| Emotional scale | 332 (77.8) | 35 (8.2) | 60 (14.0) |
| Conduct problem scale | 318 (74.5) | 51 (11.9) | 58 (13.6) |
| Hyperactivity scale | 388 (90.9) | 26 (6.1) | 13 (3.0) |
| Peer pressure scale | 270 (63.2) | 120 (28.1) | 37 (8.7) |
| Total difficulties score | 309 (72.4) | 77 (18.0) | 41 (9.6) |
| Prosocial scale | 338 (79.2) | 61 (14.3) | 28 (6.5) |

*(Figures in parenthesis denotes Percentages)

**Table 3.Risk of developing mental health illness for the study population**

N=427

| Variable | High risk for Mental health illness (%) | Low risk for Mental health illness (%) | p value | Unadjusted OR (95% CI)# |
|---|---|---|---|---|
| **Non scholastic qualities score** | | | | |
| ≥75th percentile | 13 (3.0) | 100 (23.4) | 0.423 | 1.328 (0.662 – 2.664) |
| <75th percentile | 28 (6.6) | 286 (67.0) | | |
| **Gender** | | | | |
| Male | 22 (5.2) | 147 (34.4) | 0.052 | 1.883 (0.985 – 3.596) |
| Female | 19 (4.4) | 239 (56.0) | | |
| **MBBS Phase** | | | | |
| Phase I | 11 (2.6) | 138 (32.3) | 0.334 | - |
| Phase II | 17 (4.0) | 119 (27.9) | | |
| Phase III – Part I | 13 (3.0) | 129 (30.2) | | |
| **Geographic area** | | | | |
| Urban | 27 (6.3) | 239 (56.0) | 0.621 | 1.186 (0.603 – 2.335) |
| Rural | 14 (3.3) | 147 (34.4) | | |
| **Place of stay** | | | | |
| Hostel | 37 (8.7) | 323 (75.6) | 0.272 | 0.621 – 5.241 |
| Day scholar | 4 (0.9) | 63 (14.8) | | |
| **Higher secondary school** | | | | |
| CBSE | 18 (4.2) | 163 (38.2) | 0.646 | - |
| ICSE/IGCSE | 0 (0.0) | 8 (1.9) | | |
| State Board | 23 (5.4) | 215 (50.3) | | |
| **Previous History of psychiatric illness** | | | | |
| Yes | 7 (1.6) | 16 (3.7) | 0.000* | 4.761 (1.832 – 12.374) |
| No | 34 (8.0) | 370 (86.7) | | |
| **Psychoactive substance use** | | | | |
| Yes | 7 (1.6) | 8 (1.9) | 0.000* | 9.728 (3.326 – 28.456) |
| No | 34 (8.0) | 378 (88.5) | | |

*(Denotes significant P value)#(Denotes Unadjusted Odds Ratio and CI-confidence interval)

**Table 4.Statements / Verbalism according to categories: (Perceptions of Students)**

| Categories | Statements: |
|---|---|
| Ignorance | Participant 1 said, "Oh yes I have heard about it. Activity other for than our regular thing".<br>When probed as to what they were able to say that activities other than academics, but specifically unable to pinpoint<br>Participant 3 said, "I think extracurricular activities other than studying". Some of the participants were able to say what it actually means but not very specifically.<br>Participant 1 said, "Even our Professors are not aware of it".<br>It is a complicated term and even though non scholastic qualities are of great importance I highly doubt that only some professors will be aware of it as they are more concentrating only on academics and clinics. |
| Personality Development | Participant 2 said, "Playing a sport on and off during our core academic eases the pressure on us".<br>Participant 1 said, "It helps us unwind".<br>When probed as to how, Teamwork and resolving conflicts in sports develops a bond between the seniors and juniors and in turn develops a sense of harmony among us. |
| Stress Buster | Participant 3 said, "When we have many exams in a week even an hour of creative activities relieves the stress" |
| Inclusiveness in Curriculum | Participant 5 said, "It would be helpful if we have a formal records of our activities considering the new curriculum."<br>When probed to elaborate, She said that to be an Ideal Medical Graduate it is better to assess their qualities and maintain it so that when we fall short of certain qualities we will also be well informed regarding the same and try to improve it.<br>Participant 3 said, "Considering the amount of crime against doctors, It is necessary to get our attitudes right before facing the community".<br>When probed to elaborate, there is lot of crime happening against doctors. Sometimes the fault is with overworked doctors not able to communicate properly and may be also defend properly if we find a way to protect<br>ourselves it would help us to face these kind of extreme situation. |
| Mental Health Association | Participant 4 said, " It helps us to put all our energy into creating something unique"<br>When asked as to how, He said that whenever we participate in anything it gives us a sense of satisfaction and a sense of achievement which in turn spreads positivity in their lives which indirectly helps us to achieve a lot.<br>Participant 1 said, "When we do these activities we divert ourselves from all the stress/ pressure of the academics and clinics". When asked to elaborate she said that monotonous activities make us sober and mundane. We really enjoy to even write scientific papers as it creates a sense of novelty and is an overwhelming feeling for them. |

## Discussion

### Mean Non Scholastic Scores and Their Perception

The mean score of non-scholastic qualities in our study was found to be 76.44 $\pm$ 11.13 (75.39 – 77.5) with a minimum score of 41 and a maximum score of 116. Percentile distribution of subjects is at score 68 (25th percentile), 77 (50th percentile), and 84 (75th percentile). This is much higher than a study done by Sathar S et al[5]. However the mean scores of personal attributes are much lesser 23.4. This may be due to the fact that we have a larger sample size and we have included all three years.

The qualitative in depth interviews stated that the students and professors are not fully aware of the non-scholastic qualities however after explaining about them they feel these qualities are a positive reinforcement to their personality development and will rekindle their creative side. Many of them were confused about the various items to be included in non-scholastic area which is overlapping with the scholastic area. The validated questionnaire (MNSQ) will ensure this.

The multidimensional approach to an Ideal Medical Graduate: The New curriculum has been updated and a multidimensional approach has been taken for a fully functioning Ideal Medical Graduate. To match with the programmes offered by the universities of the first world countries this approach will set our young budding medical graduates apart from everyone else. A holistic approach of personal, inter-personal and communication attributes will fetch them great places in their community. Our study found out that the individual attributes such as (consistency, promptness, scientific temper, hard work, emotional intelligence, novelty and leadership ) were lacking among the graduates more than the inter personal and communication attributes. This calls for prioritising these qualities over their interpersonal and communication qualities. West PC et al similarly debated that the personal factors such as distress, individual characteristics and interpersonal qualities play an important role in developing professionalism in their profession.[14,15]

The qualitative in depth interviews[16] also rightly pointed out that the violence against doctors can be prevented if their communication skills are good. It will also help them in solving conflicts among their peers and seniors. Various Studies have reinforced this point over the decades.[17-19]

Mental Health Illness and its association to Non scholastic qualities:

There were only 41( 9.6%) of students to develop high risk of developing mental health illness. No other study examined this hypothesis for comparing our findings. Association between the non-scholastic qualities and mental health (divided into low and high risk categories) did not show any statistical significance in the multiple linear regression. However, having a previous history of any kind of psychiatric illness and using of psychoactive substance use had a strong association ($p<0.001$) with an unadjusted odds of 4.761 (1.832 – 12.374) and 9.728 (3.326 – 28.456) respectively. Hence students with previous history of psychiatric illness and usage of psychoactive substance fall below the 75$^{th}$ percentile of students with less non scholastic qualities. However in our qualitative analysis, mental health was positively associated with the non-scholastic qualities all students felt it has a great impact on their mental health as it relieves stress, some felt it is a distraction from the normal monotonous activities of their daily routine. Some students even felt it gives them freedom or it is liberating when they practices these qualities. The In – Depth interviews clearly gave them the privacy and since the questions were open ended they could tell us more about them. This aspect should be explored quantitatively also if there is any association between the non-scholastic qualities and mental health. These students can be identified and helped if needed anonymously without judgement or any kind of consequences after earning their trust by counselling. A formal record of these qualities can be maintained and included in the already existing Mentor and Mentee Programme. The tracking of the same can be used to identify any outliers and take the necessary steps to intervene.

## Strength and Limitations

This is the first study to explore the association between mental health and non-scholastic qualities in India. Our study has used a pretested validated, questionnaire ensuring the internal validity. All qualitative methods were taken and analysed by two qualitative trained personnel and any discrepancy were resolved among them. However it suffers from the selection bias as all years have been included from only one particular medical college only. This study can be a basis and researchers can include more medical colleges with this particular tool (MNSQ - questionnaire).

## Conclusion

The Mean Non scholastic Qualities are high, however the mean personal attributes score was very less compared to the other attributes. There is no direct association between the non- scholastic quality and mental health, however prior history of mental health and usage of psychoactive substance have a strong association with poor non scholastic qualities. Ignorance, Personality development, Stress relieving, inclusiveness in curriculum and its association with mental health were the perspectives of the medical graduates.

**Conflict of Interest:** None

**Source of Finding:** None

**Declaration of Generative AI and AI-Assisted Technologies in the Writing Process:** None

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