

Burnout among Medical Students: A Comparison between Students of Traditional and Innovative Undergraduate Curricula in Prince Sattam Bin Abdulaziz University, Saudi Arabia

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Abstract

The study of medicine at the undergraduate level is perceived as being stressful. It is established that high levels of stress may lead to burnout, which has various adverse effects on the cognitive functions and learning of students. Thus, this comparative study estimated the prevalence of burnout among medical students and investigated if the levels of burnout depended on the type of curriculum. All medical students enrolled synchronously in traditional and the integrated curricula at the College of Medicine, Prince Sattam Bin Abdulaziz University (PSAU) in Saudi Arabia, from first-year through year six were invited to complete a Shirom-Melamed Burnout Questionnaire, a validated tool used to diagnose the presence or absence of burnout and its level. Correlations between the level of burnout and several variables such as the type of the curriculum, academic year, educational achievement, age, or residence were tested. One third of the medical students at PSAU suffered of burnout and the medical study was the major contributing factor. The majority students who developed burnout were studying the traditional curriculum. Overall, this is an acceptable percentage.

Keywords: Medical Students; Students Burnout; Traditional Curriculum; Integrated Curriculum

Introduction

Medical education is an intensive continuous process. Students should learn clinical skills in patient care delivery settings. Medicine is an endless path and a career where the students face a lot of pressure and stress with an increased risk of depression [1]. During the first years of undergraduate medical studies, students are overwhelmed by the amount of medical knowledge and skills they have to learn. Thus, the students are exposed to considerable stress [2].

Burnout is a syndrome defined as a result of continuous and long-term stress exposure, particularly related to chronic stress psychosocial factors at the workplace that has not been successfully managed [3]. Burnout syndrome has multiple contributors, which charac-

terized by a variety of symptoms, including high levels of feelings of energy depletion or exhaustion, feelings of negativism towards one's professional duties, or professional cynicism [4].

The College of Medicine in Prince Sattam Bin Abdulaziz University (COM-PSAU), established in 2009, is currently transforming its traditional discipline-based curriculum to an innovative, integrated, and problem-based one. In the time being, the college is run the two curricula, the traditional and innovative, synchronously. Two student cohorts are enrolled in the new innovative curriculum (Years 2 and 3) while three batches are still engaged in the old traditional curriculum since their admission to the college (Years 4, 5 and 6) [5].

Since 1910, the traditional system of medical education has been characterized by the dichotomy of basic and clinical phases. Integration in medical education with the introduction of problem-based learning (PBL) has been introduced in the late 1960s and early 1970s at Macmaster University in Canada [6]. In PBL, a problem is initially presented to the students who attempt to define the problem, explore what they already know about underlying issues related to it, characterize the tools and possible ways to solve the problem and finally, report on their findings.

Students' engagement in stressful educational environments will make them dissatisfied; will affect their academic performance as well as their achievement. Part of the job of medical educationists is to help develop a favorable educational environment for their students, a type of environment that can help them use all of their potentials in order to achieve their goals best. The first step to fulfill this goal is to diagnose stress as well as factors leading to this stress. The next step is to work on these factors trying to overcome them. This study will give an idea about the soundness of the new educational intervention adopted by the College of Medicine Prince Sattam Bin Abdulaziz University.

Throughout history, several researchers compared the traditional and innovative systems of medical education in terms of efficacy, outcomes, knowledge, and competency of graduates. In this study, our focus might be different.

Aim of the Study

This study aims to investigate the relation between the type of medical education curriculum and the medical students' feelings of burnout in the College of Medicine, Prince Sattam Bin Abdulaziz University. To achieve this, the study assesses the frequency and level of burnout among undergraduate medical students of PSAU-COM and correlates the type of curriculum to the degree of burnout.

Methodology

This observational cross-sectional study conducted in COM-PSAU targeted 240 medical students in the College of Medicine. Students were invited to respond to an online revised version of the validated 14-item SMBM. The cohort included students who followed the conventional curriculum and those enrolled in the PBL curriculum.

Data were uploaded to the SPSS version 20 software and then analyzed using descriptive and analytical tests. A comparison between students in the new and old curricula was conducted during this phase.

The 14-item SMBM [7,8] assessed burnout symptoms. SMBM consists of the three subscales labeled physical fatigue (six items: e.g. «I feel physically drained» or «I feel fed-up»), cognitive weariness (five items: e.g. «I feel I am not thinking clearly» or «I have difficulty concentrating»), and emotional exhaustion (three items: e.g. «I feel I am unable to be sensitive to the needs of coworkers and customers» or «I feel I am not capable to being sympathetic to coworkers and customers»). Individual scores ≥ 4.4 was considered diagnostic for burnout.

Results

The response rate was 82.5 % (221 out of 268 male students). All of the students were males; this is because there were female students in COM-PSAU in the time being. The student’s ages ranged between 19 and 22 years. Of the respondents, 50 % were enrolled in the PBL (years 2, 3, 4) and 50% were enrolled in the traditional curriculum I (years 4, 5 and 6). In year 4, there was a group that followed the traditional curriculum (n = 17 students) because they failed and were repeating some courses from the previous year and another group (n = 32) following the PBL curriculum. We analyzed data of the fourth year parallel groups separately.

| Factors | | Number (%) |
|-----------------|---------------|--------------|
| Age | 19 - 22 Years | 128 (62.44%) |
| | 23 - 27 Years | 71 (32.12%) |
| GPA | < 3.5 | 40 (18.09%) |
| | 3.5 - < 4.75 | 142 (64.25%) |
| | 4.75 - 5 | 39 (17.64%) |
| Residence | In Kharj | 104 (47.06%) |
| | Outside Kharj | 117 (52.94%) |
| Grade | 2 | 48 (21.72%) |
| | 3 | 48 (21.72%) |
| | 4 | 49 (22.18%) |
| | 5 | 38 (17.2%) |
| | 6 | 38 (17.2%) |
| Curriculum Type | Traditional | 93 (42.1%) |
| | PBL | 128 (62.44%) |

Table 1: Distribution of 221 respondents according to their ages, GPAs, Residences, Study grade, and type of the curriculum.

Students’ responses to the different statements of the SMBM were mostly in the side of having a burnout indicator. The two statements «feeling incapable of investing emotionally in» or «being sympathetic to» classmates and school peers» were the only two exceptions as the students perception of these two constructs was to the side of infrequent.

| No. | Statements | Mean | Std. Deviation |
|-----|--|------|----------------|
| | I feel tired | 4.29 | 1.562 |
| | I have no energy for going to school in morning | 3.79 | 1.646 |
| | I feel physically drained | 4.30 | 1.696 |
| | I feel fed up | 4.13 | 1.796 |
| | I feel like my “batteries” are “dead” | 4.07 | 1.790 |
| | I feel burned out | 4.28 | 1.753 |
| | My thinking process is slow | 3.92 | 1.755 |
| | I have difficulty concentrating | 4.01 | 1.802 |
| | I feel I’m not thinking clearly | 3.63 | 1.673 |
| | I feel I am not focused on my thinking | 3.74 | 1.624 |
| | I have difficulty thinking in complicated things | 3.75 | 1.762 |
| | I feel I am unable to be sensitive to the needs of classmates and peers at school | 3.16 | 1.791 |
| | I feel I am not capable of investing emotionally in classmates and peers at school | 2.99 | 1.758 |
| | I feel I am not capable of being sympathetic to classmates and school peers | 2.97 | 1.892 |

Table 2: Mean score (and SD) of students’ responses to the individual statements of the SMBM.

Overall, the percentage of students with burnout was 42.98%, while the percentage of those without burnout was equal 57.01%.

| Burnout Status | Number | Percentage |
|-----------------|--------|------------|
| Burnout | 95 | 42.98% |
| Without burnout | 126 | 57.01% |
| Total | 221 | 100% |

Table 3: Percentage of the students' burnout as identified by SMBM.

As regard factors that might be of impact on the development of burnout. Two thirds (68.4%) of students with burnout were in the traditional curriculum. As per grade, students of the 4th-year traditional curriculum were represented those with severe burnout while students of years 3 and 6 were the least.

| Parameter | Traditional curriculum | PBL | P-value |
|------------------|------------------------|--------------|----------|
| Number (%) | 17 (34.69) | 32 (65.31) | |
| Age | 23.95 ± 5.16 | 21.34 ± 2.21 | 0.016* |
| Residence | | | |
| Kharj | 10 (58.82) | 14 (43.75) | |
| Riyadh | 7 (41.17) | 18 (56.25) | |
| GPA | | | |
| < 3.5 | 6 (35.3) | 2 (6.25) | 0.009 |
| 3.5 - < 4.75 | 11 (64.71) | 22 (68.75) | 0.779 |
| 4.75 - 5 | 0 | 8 (25) | 0.026 |
| Burnout | 13 (76.5) | 3 (9.4) | < 0.0001 |
| No burnout | 3 (17.64) | 29 (90.62) | < 0.0001 |

Table 4: Comparison between 4th-year traditional curriculum and 4th-year PBL.

The GPA was significantly higher in 4th-year students in the PBL curriculum compared to those studying the traditional curriculum. The burnout is significantly higher in students in the traditional curriculum compared to those in the PBL.

Discussion

Data from our sample in COM-PSAU using the revised 14-item Shirom-Melamed Burnout Measure (SMBM) showed that around one third of students is suffering burnout, majority of them were in the traditional curriculum and in Year 4 in particular. The traditional curriculum is discipline-based where the students are engaged in study of a group of disciplines for the year long. Instruction is teacher based and lecturing is the dominant method of instruction. Year 4 is the first year in the clinical (clerkship) phase in the traditional curriculum of COM-PSAU. After the first years of study in the basic medical sciences, students suddenly are engaged in a totally different type of disciplines peculiar to this grade level. For example, the educational settings are totally different where hospitals are the main learning resource. First student-patient contact also takes place at this level. Finally, assessment settings indicate the students being caught in the crossfire between the examiners and the patient.

| Factors | Number (%) | Burnout | No Burnout | Chi ² | Sig. (p-value) | |
|-----------------|---------------|-------------|------------|------------------|----------------|--------|
| Age | 19 - 22 Years | 128 (64.3%) | 49 | 79 | 0.39 | 0.544 |
| | 23 - 27 Years | 71 (35.7%) | 24 | 47 | | |
| GPA | < 3.5 | 24 (12.1%) | 7 | 17 | 0.79 | 0.675 |
| | 3.5 - < 4.75 | 130 (65.3%) | 50 | 80 | | |
| | 4.75 - 5 | 45 (22.6%) | 16 | 29 | | |
| Residence | In Kharj | 98 (49.2%) | 27 | 71 | 6.93 | 0.012* |
| | Outside Kharj | 101 (50.8%) | 46 | 55 | | |
| Grade | 2 | 44 (22.1%) | 15 | 29 | 22.98 | 0.000* |
| | 3 | 44 (22.1%) | 8 | 36 | | |
| | 4 | 39 (19.6%) | 24 | 15 | | |
| | 5 | 36 (18.1%) | 8 | 28 | | |
| | 6 | 36 (18.1%) | 18 | 18 | | |
| Curriculum Type | Classic | 112 (56.3%) | 50 | 62 | 6.99 | 0.011* |
| | Innovative | 87 (43.7%) | 23 | 64 | | |

Table 5: Descriptive statistics of features of the study population and their relation to burnout.

*: Statistically Significant.

| Dependent Variable | Independent Variables | Unstandardized Coefficients | | Beta | t | Sig. (p-value) |
|--------------------|-----------------------|-----------------------------|-----------|-------|-------|----------------|
| | | B | Std. Err. | | | |
| Stress | Curriculum Type | 0.182 | 0.068 | 0.187 | 2.678 | 0.008* |

Table 6: Regression analysis: stress and curriculum type.

*: Statistically Significant.

Students in the new curriculum are more actively involved. The curriculum is student-centered, problem-based. Disciplines are integrated short challenging courses based on the body organs and systems. Simulation is the mainstream of learning. Like the variety of teaching methods, there is variable tray of the assessment tools to evaluate all possible competencies and to fit with the different learning styles of student

Conclusion

One third of the students of COM-PSAU are suffering burnout where their medical study is main causing factor. Overall this is an acceptable percentage. Most of the students who are suffering burnout are in the traditional and in Year 4 of this curriculum.

Strengths and Limitations

Strengths of the study include novelty of this research point particularly within the inauguration of the new curriculum while the traditional one still exists. Inferences obtained can help in evaluation of the two programs and in mean time guide the reform process. Awareness for the students preceded data collection was well conducted evinced by this satisfactory rate of response.

Limitations include the short duration available for conducting this research. A qualitative analysis is indicated to make deep understanding of how the traditional and new curriculum can affect the state of burnout for the students.

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