

THE IMPACT OF TEACHERS' WORKLOAD ON STUDENTS' ACADEMIC PERFORMANCE: A SINGLE - INSTITUTION OBSERVATIONAL STUDY AT AN ACADEMIC HEALTH SCIENCES FACILITY

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ABSTRACT

Excessive workload is known for centuries for its eventual deleterious effect on health and performance and, as a result, on productivity and loss of man hours in various spheres of endeavour. It is also salient amongst the reasons many tertiary institutions of learning fall short of standards required for accreditation by various accrediting commissions with inadequate numbers of qualified teachers assigned to ever increasing numbers of yearly student admissions which, in turn, is designed to satisfy the educational needs of a geometrically expanding population. In a number of institutions, threats to accreditation in one or more disciplines usually gives rise to frantic curbing of number student admissions over several years to improve facility. This is a critical look at the effect of excessive teacher workload on the quality of education.

Study Objective/Setting: To determine the influence of student numbers and classes taken by each lecturer on the quality and academic performance of students at our academic health sciences institution.

Method: A five - year retrospective study of students' academic performance against numbers of students under the tutelage of the teachers. We studied three clinical levels taught by the Department of Surgery of our tertiary academic medical sciences

centre from 2008/2009 to 2012/2013 academic sessions. Outcomes were documented as scores from the examinations conducted over the period of five (5) academic sessions.

Results: Between 2008/09 and 2012/13 academic sessions, there was 58.6% and 50.4% progressive reduction of 400 level and 600 level medical students, respectively, taught by 19 teachers over those sessions. This was reflected as 55.2% reduction in teachers' workload, between 2008/09 and 2012/13, as well as 22.4% and 21.6% improvement in academic scores at both 400 Level and 600 Level medicine classes, respectively. Thus, there is a strong positive linear correlation between teachers' workload and the performance scores of students at each academic level. (Pearson's $r = 0.78$).

Conclusion: There is, incontrovertibly, the need to establish more standard accredited higher institutions of learning to accommodate the teeming numbers of young prospective graduates, as well, reduce the workload (pressure of work) on the teachers. These will serve to reduce the number of students per teacher, foster student - teacher educational interactions, reduce the demand on tenuous teaching facility in resource-limited settings and improve the quality of the nation's young workforce graduating each session from institutions of higher learning.

Keywords: Higher Institutions; Increasing Number of Students; Inadequate Number of Teachers; Workload; Quality of Education; Academic Performance; Resource-Limited Setting

INTRODUCTION

Classrooms today have become increasingly diverse and demanding, a complex coming together of the potential for excellence on the one hand and severely limiting challenges for learning on the other.¹ Since employee performance is inversely related to workload, increased workload on the few available teachers, is expected to result in reduced academic performance due to increased work stress.^{2,3} Assessing the effect of workload

on the effectiveness of the academic staff should be paramount to higher institutions because they are the veritable asset determining the institutions' productivity.^{4,5} The academic performance of students is one of the core indicators of the quality of education reflecting the effectiveness of the academic.^{3,6} This is a critical look at the effect of excessive teacher workload on the quality of education in a medical school.

MATERIALS AND METHODS

We studied retrospectively the academic performances of clinical medical students taught by the same number of teachers from 2008/2009 to 2012/2013 i.e. over a period of five academic sessions. Four hundred level (400L), five hundred level (500L) and six hundred level (600L) or final year medical students over five academic sessions were included in the study. The 500L students included both the medical students and also the penultimate dentistry class. They all had weekly rotations for twelve weeks through all the ten subdivision of our Department of Surgery (which included three divisions of General Surgery (hepatobiliary, endocrine and gastro-intestinal and oncology), Paediatric, Urologic, Cardio-thoracic, Neurological and Trauma Surgeries. Initially, Orthopaedic, Plastic and ENT (ear, nose and throat) Surgeries - which later became different departments - were included

The students' teaching interactions with their course advisers were multi-faceted. Thus, they were stratified into (a) formal classroom teachings/lectures, (b) clinical sessions (teachings, various demonstrations, and hands on sessions in ward rounds, outpatient clinics, emergency rooms and operating rooms (emergency and elective procedures)) and (c) prime time as well as off season tutorial sessions in smaller groups for revision under a teacher. The actual workload equated to the number of the various teaching sessions above multiplied by the number of

students for each teacher. Thus, for each academic session, the workload for each lecturer was the sum of students at all levels multiplied by the number various teaching interactions. The academic performances of students were obtained from a computerized log of examination scores at various levels. Data was analysed using Excel Worksheet 2018.

Exclusion Criteria

All 500L students of medicine and dentistry were excluded in data analysis and results. They former took 6 special courses/postings (anaesthesiology, radiology, ENT, plastics, ophthalmology and orthopaedics) excluding 8 specialties of the department of surgery while the latter took a limited curriculum of 6 of the 8 courses taught by surgery and those taught by the six departments outside surgery. Only 400L and 600L medical students who took all courses in the department (excluding courses outside surgery) were included in the analysis of data.

Results

Over a period of five academic sessions, we studied the academic performances of three levels/classes of medical students (400, 500 and 600 Levels) and dentistry only at 500 Level class. However, result analysis included only the 400 and 500 Level medical students. (Tables 1-3). The number of student admissions progressively reduced over the duration of five academic sessions studied – from 215 to 89 (for 400 Level) and from 246 to 122 (for 600 Level) representing 58.6% and 50.4% reduction of students taught by 19 teachers over those sessions, respectively. (Table 1). The reduction in numbers of students was reflected as a progressive reduction in teachers' workload, i.e. 55.2% between 2008/09 and 2012/13 sessions as well as 22.4% and 21.6% improvement at both 400 Level and 600 Level medicine classes, respectively. Pearson correlation coefficient 0.78. (Tables 2 and 3).

DISCUSSION

Teaching, though a compelling career with the latent capability of changing lives, it is one of those professions in which many could easily leave because the personal price to pay to work as a teacher could be immense.¹ Thereasons are related to heavy workload, a stressful teaching environment and a lack of opportunities for advancement and pay increases.¹ Decisions regarding the relevance of universities in an increasingly demanding society have not reflected upon the impact on the workloads of faculty given increased expectations for measurable outputs, responsiveness to societal and student needs, and overall performance accountability.⁷ The inadequate number of administrative cadres, in most of our institutions, has a negative impact on the quality of education because significant amount of administrative work is indirectly placed on the classroom by increasing teacher workload.¹ This study underscores the positive impact of reducing teachers' work pressure on students' performance both at the entry into and exit from the clinical (or hospital) half of medical education. The converse is also true. Pearson's $r = 0.78$).

In recent times, inter alia, the great concerns of many teachers are about the capacity of the school system to meet the needs of today's students in the face of rapidly increasing teaching demands and societal expectations.¹ It is common knowledge that the numbers of doctors joining academic medicine are in decline across the globe; this may be due, in part, to the emergence of sophisticated communications without redesigning curriculum and methods of learning which stimulate the medical student to join academic medicine.^{8, 9} Studies identify four different learning styles (active-reflective, visual-verbal, sequential-global, sensing intuitive) and teachers, but any conclusions suggesting the

superiority of any of these over the others should be drawn with caution.^{10, 11}

Such great premium is given to scientific research and technology in medical schools (this stemming from the need for funding and ranking) at the expense of other preserves of learning.^{12, 13} This may hinder academic performance and negate the ultimate goal of medical education namely to produce patient-centred self-reflective physicians after the order of the Hippocratic oath.^{12, 14}

Large classes translate to poor academic performance among students and is strongly predictive of "burnout" especially among the younger teachers.^{15, 16} Thus, to reduce individual workload and, hence, academic performance institutions should embrace sharing of responsibilities and delegation of duties among workers as well as employment of more skilled staff.

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Table 1: Number of students taught at three levels by 19 lecturers over five academic sessions.

CLASS	ACADEMIC SESSIONS				
	2008/09	2009/10	2010/11	2011/12	2012/13
400L	215	160	122	95	89
500L DENTAL	95	40	31	27	30
600L	246	194	198	203	122
TOTAL	556	394	351	325	241

Table 2: Workload of lecturers and students' academic performance.

ACADEMIC SESSION	WORK LOAD (students/lecturer ratio)	MEAN % PASS
2008/09	29:1	68.7
2009/10	21:1	63.9
2010/11	18:1	69.1
2011/12	17:1	74.7
2012/13	13:1	83.8

Table 3: Academic performance of students over five academic sessions (% pass)

CLASS	ACADEMIC SESSIONS				
	2008/09	2009/10	2010/11	2011/12	2012/13
400L	61.5	59.5	62.3	73.1	75.3
600L	75.8	68.2	75.9	76.2	92.2
MEAN % PASS	68.7	63.9	69.1	74.7	83.8

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