Paper

Gender differences in undergraduate medical examination results in Sri Lanka

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Abstract

Objective To identify possible gender related differences in performance at undergraduate medical examinations in Sri Lanka.

Study design and methods Results of examinations conducted by the faculty of medicine, University of Kelaniya in 1997 and 1998, and data published by the University Grants Commission (UGC) on final examinations conducted by 4 other Sri Lankan medical faculties (in the Universities of Colombo, Peradeniya, Ruhuna and Jaffna) in 1996 and 1997, were analysed for sex related differences.

Results The proportion of women in each batch of students who sat for 8 examinations conducted at the faculty of medicine, University of Kelaniya in 1997 and 1998, ranged from 40.7 to 48.4% (average 44.3%). Among students sitting for the final MBBS examinations in other medical faculties in 1996 and 1997, the proportion of women ranged from 37.3% in Peradeniya to 53.7% in Jaffna. The proportions of women who obtained "classes" were higher than that of men in 12/15 examinations, with statistically significant differences in four. Higher proportions of men were referred or failed in all 8 examinations analysed; the differences were statistically significant in two.

Conclusions Women appear to do marginally better than men in undergraduate medical examinations in Sri Lanka.

Introduction

Females in Sri Lanka have equal access to education at all levels, but it has been suggested that education has not adequately empowered women to be aware of, and assert their rights, and that women are still unable to resist the social imposition of practices that inhibit their personal development (1). There is a paucity of publications on gender issues in relation to medical education and the medical profession in Sri Lanka, perhaps because large numbers of women have been admitted to study medicine since the 1960s (1,2). A study from the University of Peradeniya on gender issues among staff and students did not address problems of the medical faculty in any detail (2). The term gender is used here to describe "those characteristics of men and women which are socially constructed and therefore can change, in contrast to those that are biologically determined and therefore cannot change" (3).

Performance at undergraduate examinations is a factor that affects the careers of all medical professionals. It was used in this study as an objective indicator of possible gender related differences in student achievement.

Methods

Results of 8 examinations conducted by the Faculty of Medicine, University of Kelaniya, in 1997 and 1998 were analysed for sex related differences, as were data published by the UGC on final MBBS examinations of other medical faculties.

Examinations of the Faculty of Medicine, University of Kelaniya

Four main examinations are conducted in the faculty each year. The first three examinations (2nd MB, 3rd MB Part I, 3rd MB Part II) consist of three subjects each, and the final has four subjects. "Classes" are awarded based on the overall average mark in each examination. The results of the examinations held in 1997 and 1998 were analysed with regard to sex distribution among (a) students sitting for each examination (b) those obtaining distinctions (≥70% in the subject) and or "classes" (overall average of ≥60% in the examination) (c) those who were referred (<50% in a subject) or failed (<50% in all subjects). Only the results of students sitting any given examination for the first time were included in the analysis.

Final MBBS examinations of other faculties of medicine

Data on the results of final MBBS examinations conducted by the faculties of medicine of the Universities of Colombo, Peradeniya and Ruhuna in 1996, and Jaffna in addition in 1997 (as published by the UGC) were analysed with regard to the sex distribution among (a) students sitting for each examination and (b) students obtaining "classes" (4).

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Statistical analysis

P-values were calculated from the Mantel-Haenszel χ^2 using one degree of freedom, or by the Fisher exact probability calculation if an expected cell value was less than 5, to determine statistically significant differences between men and women.

Results

Examinations in the Faculty of Medicine, University of Kelaniya

In 1997, 658 students (373 men, 56. 7%) registered for their first attempt at the examinations conducted in the faculty. In 1998 there were 708 students, 388 of whom were men (54.8%). The proportion of women in each batch ranged from 40.7 to 48.4% (mean 44.3%). Data on the results of the eight relevant examinations are shown in Table 1. In all except one examination, the proportions of women who obtained "classes" (or distinctions in the 3rd MB Part I subjects) were higher than the proportion of men (6.6 to 42.5% for women, compared with 4.6 to 23.9% for men). The differences were marginal in most (5/7) examinations, but statistically significant in both 3rd MB Part II examinations. Moreover, in all 8 examinations, the proportion of women who were referred or failed was less than the proportion of men (17.7 to 50.0% and 31.8 to 72.0% respectively). Again the differences were mostly marginal (6/8 examinations), but statistically significant in the 3rd MB Part I and Part II examinations in 1997.

Final MBBS examinations of other faculties of medicine

In 1996, 423 students sat for the final MBBS examinations in the medical faculties at Colombo, Peradeniya and Ruhuna, the proportion of women being 39.9, 37.3 and 41.6% respectively in each faculty. In 1997, 541 students sat their finals, with 38.7, 41.1, 49.7 and 53.7% women in Colombo, Peradeniya, Ruhuna and Jaffna respectively. In 5 of the 7 examinations analysed, the proportion of women who obtained "classes" was higher than the proportion of men (Table 2). The differences were statistically significant in two examinations (Peradeniya 1996 and Ruhuna 1997).

Discussion

At 44.3%, the percentage of women among medical students in the University of Kelaniya is similar to that of medical faculties in Ruhuna (43 to 44%), Sri Jayawardanapura (44 to 45%), and Jaffna (43 to 49%), but somewhat higher than in Colombo (37 to 38%), and Peradeniya (40 to 41%) (4). This is consistent with the observation that a higher percentage of men are admitted to the Universities, especially for science courses including medicine, despite a higher percentage of women students "qualifying" for selection (5,6). This has been attributed to the fact that men are more likely to achieve high grades in the university entrance examination, (General Certificate of Education, Advanced Level), thus placing them at an advantage in a selection system based on the aggregate mark obtained.

Our results indicate that men are more likely to be referred in, or to fail examinations, and less likely to obtain "classes", both in our faculty and in other medical faculties. Similar results were recently reported from University College, Dublin, Ireland, where the analysis of 5 final year examinations (1992 to 1996) showed that women were more likely to achieve an honours grade, and had a similar or lower likelihood of failing than men (7). In the UK, where students are offered places in medical schools on the basis of predicted A Level grades as well as many other criteria, women applicants were recently found to be more likely to gain entry than men (8). It has also been shown previously that in Sri Lanka, A Level aggregates *per se* do not correlate well with performance in a medical faculty (9).

Further studies are needed to confirm our findings, and to find reasons for this apparently paradoxical situation where more men than women are being admitted to the medical faculties, on the basis of A Level aggregates, but after admission, women medical students appear to perform better than men.

Table 1. Results of examinations conducted in the Faculty of Medicine, University of Kelaniya

		Number sitting for examination		*Number with classes (%)*				*Number referred / failed (%)*			
	Examination	*Male*	*Female*	*Male*	*Female*	χ^2	*p-value*	*Male*	*Female*	χ^2	*p-value*
1997	2nd MB	113	72	16 (14.2)	10 (13.9)	0.00	0.95	60 (53.1)	36 (50.0)	0.17	0.68
	3rd MB Part I	87	79	4 (4.6)*	8 (10.1)*	1.89	0.16	38 (43.7)	14 (17.7)	12.97	<0.001
	3rd MB Part II	93	79	7 (7.5)	15 (19.0)	5.03	0.02	67 (72.0)	26 (32.9)	26.34	<0.001
	Finals	80	55	11 (13.8)	10 (18.2)	0.49	0.48	30 (37.5)	20 (36.4)	0.02	0.89
1998	2ndMB	102	87	18 (17.6)	17 (19.5)	0.11	0.74	58 (56.9)	40 (46.0)	2.23	0.13
	3rd MB Part I	110	76	6 (5.5)*	5 (6.6)*	0.10	0.49**	35 (31.8)	22 (28.9)	0.17	0.67
	3rd MB Part II	93	79	21 (23.9)	34 (42.5)	6.61	0.01	38 (43.2)	20 (25.0)	2.63	0.10
	Finals	83	78	6 (7.2)	13 (16.7)	3.44	0.06	43 (51.8)	31 (39.7)	2.36	0.12

*Distinctions only **Fisher exact 1-tailed p-value

Table 2. Results of final MBBS examinations conducted by other Universities

	University	*Number sitting for examination*		*Number with classes (%)*			
		Male	*Female*	*Male*	*Female*	χ^2	*p-value*
1996	Colombo	101	67	32 (31.7)	25 (37.3)	0.57	0.45
	Peradeniya	89	53	7 (7.9)	11 (20.8)	4.99	0.02
	Ruhuna	66	47	10 (15.2)	6 (12.8)	0.13	0.72
	Jaffna	NA	NA	NA	NA		
1997	Colombo	106	67	33 (31.1)	18 (26.9)	0.36	0.54
	Peradeniya	83	58	11 (13.3)	9 (15.5)	0.14	0.70
	Ruhuna	73	72	6 (8.2)	17 (23.6)	6.43	0.01
	Jaffna	38	44	6 (15.8)	15 (34.1)	3.58	0.06

NA - Not available

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