

REASONING ABILITIES OF FOURTH YEAR MEDICAL STUDENTS

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The abilities a physician must possess are those of the clinical reasoning process which includes: inquiry, data collection, data analysis, identification of a problem/s, problem solving, hypothesis generation and testing, decision making, deduction and induction. These are part of the scientific method.

This study sought to determine the reasoning skills possessed by medical students on the date of commencement of the fourth year of their medical course.

A test was designed to assess all the components of reasoning specified in para above plus language ability which could confound some of the tests under investigation: Part A – mathematical reasoning, Part B – inductive and deductive reasoning, Part C – English language ability. The identical test was administered to two batches of medical students, of the University of Peradeniya, at the beginning of the fourth year of study, without prior notification or training. The tests administered in the years 2000 and 2001 were under standard conditions for the conduct of examinations.

Answer scripts were evaluated on a pre-set marking scheme. Significant credit was given to the process of reasoning rather than to the final answer itself. The results of Parts A and B were analyzed. The results are presented in the table below.

Table: Summary statistics on tests of reasoning ability of 4th yr. medical students

Year of administration	No. of students (% of total)	Mathematical ability - Part A (\bar{X})	Reasoning ability - Part B (\bar{X}).	t-test *
2000	159 (93)	76%	9.9%	57.98
2001	169 (90)	79%	12.6%	60.35

* $p < 0.001$

Clearly there is a significant difference between performance on mathematical tasks versus performances on tasks involving other forms of reasoning. While performance on mathematical tasks (Part A) was good they were purely deductive, symbolic and applied. Those of the other tasks of reasoning tested (Part B) were both inductive and deductive. Inductive & deductive reasoning is very much part of the use of the scientific method in the day to day life of a physician.

Will our faculty recognize that there is a problem concerning reasoning ability of fourth year medical students and try to do something about it? Training in the clinical decision making process is being done elsewhere, of course.