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The Scientific Medical Cultures and Rural Medicine

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Ten years ago, a dozen leaders of medical education in India were meeting here in Bombay as one of the three committees planning for the historic 1955 All-India Conference on Medical Education. This particular committee under the co-chairmanship of Drs Vengsarker and Yodh was responsible for proposing a new curriculum and new teaching methods specifically adapted to the needs of India. It was my privilege to represent the academic discipline of social and preventive medicine. Two new objectives for medical education in India were accepted. The first obviously was the introduction of a preventive orientation into all medical teaching; the second was particular emphasis on the need for orientation of doctors to rural needs and rural service. Immediate and active discussion centred around the question whether there is, in fact, any such thing as rural medicine. Some basic scientists on the committee pointed out that one can't tell the liver or kidney of a rural person from that of a city person. The differences are in social, psychological, and organizational variables. The simplest statement of the difference is that the whole rural community must be considered the patient of the rural doctor.

As indicated by my title, I will try to relate my observations of rural medicine to total medical educational developments in India and will conclude with some findings from our Rural Health Research Project. The fundamental question I will discuss and the reason for my title is whether there is a basic incompatibility between the scientific medical culture and rural medicine.

First, let me express my continuing amaze-

ment at the speed and extent of progress in medical education in India.

None of us who participated in the 1955 Congress on Medical Education would have dared to hope for the tremendous progress which we know now was possible at that time. The achievements of your good friends who are the medical educators of India are a challenge to the rest of the world. The quantitative achievements are impressive. I know of no other country which has so rapidly and massively expanded its medical education.

Even more important, however, to me have been the qualitative changes. Many leaders in India and consultants from abroad have expressed concern about the danger of lowered quality of education during this period of quantitative expansion. The concern is real, and we all know that there have been some necessary sacrifices. On the other hand, I am increasingly impressed with some significant qualitative improvements. The quality of medical education should not be measured primarily in terms of international standards. The best quality of education for India is that which serves Indian needs. In spite of occasional expressions of fear that Indian degrees will not be recognised abroad, it has been my experience that wise educators overseas recognise that India should have educational objectives different from the United Kingdom or the United States and an appropriate shift in content will only increase their respect for India's medical education achievements. I say this with particular reference to the emphases which should be stressed at the World Congress on Medical Education in Delhi next November. Delhi was selected

as the appropriate place to discuss 'Medical Education—a Factor in Social and Economic Development' because you, as the leaders of medical education in India, have shown that this is one of your major concerns.

The great qualitative shift in Indian Medical Education is indicated by the many new departments of social and preventive medicine which have been developed. Although these departments have not yet established themselves as being highly scientific, they are demonstrating their social responsibility by pioneering the establishment of teaching health centres in both rural and urban areas. I realize fully that these teaching health centres have been subjected to much criticism, and the departments of preventive and social medicine too, because it is said that they have not had a noticeable impact.

My plea is for reasonable patience with departments of preventive and social medicine. In teaching the community orientation one is undertaking an essentially new and pioneering effort. It took many centuries to develop the present pattern of laboratory and ward teaching and we still are not really satisfied. It impresses me as being somewhat unreasonable to expect to have the social medicine and community approach efficiently organized and palatable to the undergraduate medical student and intern on the first attempt. To make this speciality scientific there is great need for a great expansion of basic competence in epidemiology.

The most encouraging development of recent years has been the tendency for teachers from clinical departments to become so impatient with the efforts of departments of social and preventive medicine that they are now taking over to show how things should be done. More and more, I find clinical teachers participating on a regular weekly basis in the activities of teaching health centres; both clinical and basic science people actually seem to want personally to run the rural health centres. There is an encouraging appreciation of the tremendous potential for research based on adequately studied populations in health centre communities. I am encouraged because it has become increasingly apparent that there is little that a department of social and preven-

tive medicine can do to stimulate interest in rural medicine as long as they are viewed by medical students as competing with the other medical school departments. It does not take research to prove the point that preventive and social medicine is one of the least glamorous departments in medical colleges. Let me show you, however, data from our research project on the rural orientation of physicians, which show the ranking given to the various academic disciplines by 750 interns in seven Indian medical centres. Clinical teachers are the role models for medical students. It is, therefore, particularly incumbent on clinical teachers to typify in their own behaviour the values and attitudes the next generation of students will accept as controlling their own behaviour.

Rural Health Research Project

In 1959, when I spent three months visiting approximately 20 departments of preventive and social medicine in all parts of India who were developing rural teaching, it was immediately evident that the whole programme was rather seriously backfiring. Especially the rural internship seemed to be creating intense antagonism, so that many interns ended up their experience saying they were convinced of only one thing, that they were never going back to a village again. The Minister for Health was so concerned about the prospects that he asked us to study the problem. He indicated that the government was being forced more and more into a position where they were going to have to apply compulsion to doctors in order to get the health needs of rural areas met. He said that if doctors and medical educators would not themselves find the most appropriate mechanisms for meeting the health needs of villages, then politicians would have to take matters into their own hands.

After two years of the hard preparatory work that it always seems to take to initiate a new research project, we started our five-year rural health project in 1961. On sabbatical leave from Harvard and later Johns Hopkins my family and I spent a year living in Narangwal village where the teaching health centre of Ludhiana Christian Medical College is located. Out of this pilot project year, we developed a whole

battery of tests (which have been handed out). These have since been widely validated after having been worked over in much detail by a number of specialists from the social sciences, psychology and education, as well as the medical disciplines.

You will note that the questionnaire covers the following range of subjects: Attitudes of Interns, Professional Opportunities and living conditions in Villages, and the Rural Teaching Programme. Interns score on a four point scale the way they feel about individual topics. Because of your interest in the whole process of educational research, I would like to look in a little more detail at the test that we developed with the co-operation of the department of social psychology at Harvard. This is an adaptation of the 'TAT' or 'Thematic Apperception Test'. It is really an effort to find out by more refined projective techniques, the attitudes of doctors towards rural service. We have worried some about the name for this test. Most appropriate would be the 'rural attitude test' but we question the change in initials from 'TAT' to 'RAT'. In this test, the interns are asked to look for thirty seconds at a picture, then write a short story describing what they have seen. People see different things and the terms they use in description reveal otherwise camouflaged attitudes. The scoring manual has been extensively tested and validated, and we can derive from the stories mathematical scores for the long list of values on the separate page of the mimeographed material. When we started this project, we were all extremely skeptical about the possible value of such projection tests. I think we have all been convinced that not only do the results make sense, but the test really does seem to probe for a deeper insight into what interns believe that one gets from standard questionnaires.

Before moving on to results, let me add that we tried many other educational research procedures before we settled on this battery of tests. For various reasons we have discarded the others. We would like very much to share our experiences with those of you who are interested in similar educational research because we have learned something about what does not work and how tests are discarded.

Also of methodologic interest is the point that our Division of International Health at Johns Hopkins has developed similar research in Turkey and Iran. We simply translated the battery of tests from India and reproduced another set of pictures showing similar situations in Turkish or Iranian villages so we will soon be able to make international comparisons.

Let me turn now to the brief description of results. For the last four years we have had the excellent co-operation of the faculties of seven co-operating medical schools in India (All-India Institute, Seth G.S., Bombay, Lucknow, Ludhiana, Nagpur, Trivandrum and Vellore). In a wonderful example of a continuingly gracious spirit of co-operation we have together been able to gather massive amounts of data on all of the graduates of these seven medical colleges in the past three years. The battery of tests was administered both at the beginning and the end of the rural internship by our staff of seven hard-working Indian Social Scientists who lived and worked with the interns.

We expect to have a Rural Health Conference just before the World Conference on Medical Education for detailed discussion of the research findings. With the excellent help of the All-India Statistical Institute in Calcutta, we will have a comprehensive computer analysis of this material. Some of you participated in the Project's annual conference last February, at which we presented preliminary results which led to the two sets of recommendations with the supporting data that you have been given. The recommendations to the government concentrate on the general problem of trying to make rural health centres decent places for doctors to work. Priority lists are presented of the doctors' views of the major problems of working in rural health centres and possible ameliorative measures.

More important to you are the recommendations to medical colleges. These include recommendations that students with rural and lower economic backgrounds be given preference in selection, that teachers of community medicine have rural experience, that social and preventive medicine be upgraded and the clinical teachers participate in rural work.

In summary, let me say that the results

of this research are extremely encouraging. In spite of all the doubts, rural internships are producing a pronounced and beneficial effect. Even though they don't like to admit it, interns are really better equipped for community and health centre service. Significant changes have occurred in their attitudes, with the most important being the development of a greater sense of realism. Furthermore, we are closing in on fundamental understanding of what it takes to be a good rural doctor and still remain a member of the scientific medical culture.

The mimeographed sets of recommendations referred to above are available with supporting data and selected tables from the Rural Health Research Project, Narangwal Khurd, District Ludhiana, Punjab, India. Given below is a summary of pertinent findings and some recommendations made by the conference participants after discussion of these preliminary findings.

Lack of Interest in P.H.C. Work

The preliminary findings of this study confirm the general impression that young doctors (in this study interns/housemen) are not interested in primary health centre work. Only 4 per cent showed great interest, 22 per cent moderate interest, 35 per cent slight interest and 40 per cent were not interested at all.

Inadequate Preparation for Rural Work

Only 11 per cent of interns completing their rural internships felt well prepared for service in PHCs; 36 per cent felt that they were moderately well prepared; 54 per cent felt that they were either not prepared at all or were only poorly prepared for rural work. When asked about the adequacy of their preparation for ten types of medical work, the interns ranked primary health centre work ninth.

In evaluating their own abilities, interns felt least confident to practise comprehensive community care in a rural setting, i.e. mobilize community participation, investigate health problems, work with public health auxiliaries and cope with the general management and supervision of primary health centres.

This lack of adequate preparation reflects on their total medical education, not just on their few months of rural internship.

In order to ensure better teaching staff it is *recommended* that:

1. The minimum qualifications for teachers of preventive and social medicine include one to two years' practical rural experience in 'community medicine';
2. Doctors working in primary health centres, which are used for teaching have training and experience in the clinical and public health functions of health centres;
3. Teaching health centres have additional teaching staff (more than usual service staff) provided by the medical college.

In undergraduate teaching it is *recommended* that:

4. Emphasis on preventive and social aspects of medicine be given from the very first year of medical education;
5. Social and preventive medicine be integrated with clinical departments and clinicians be involved in the rural training of medical students.

To give more importance to social and preventive medicine it is *recommended* that:

6. Separate examinations in Preventive and Social Medicine be made compulsory. This examination should be at a level equal to that of examinations in other clinical subjects.

Some Positive Effects of Rural Internships

While the rural internships are not now having the total desired impact of orienting and preparing doctors for rural work, it is encouraging to note that there are indications of positive effects on the attitudes of some interns as given below.

The following percentages of interns rated their gain in knowledge from the rural posting as either good or very good:

- 71 per cent ability to learn from practical experience;
- 69 per cent ability to establish good relations with villagers;
- 57 per cent ability to get along with professional colleagues and auxiliaries, etc.;
- 56 per cent understanding of socio-economic factors in disease;
- 50 per cent rural life.

Interns showing interest in serving in primary health centres and interns coming from rural backgrounds gained most from the internship and since they are the most likely to go into rural service their preparation is particularly relevant. Those with rural background (1/3 of all interns) felt that they were better prepared after rural internship while those from urban backgrounds indicated no improvement. Those from rural background felt that after internship their ability to apply community measures for improving health was a greater as was their skill in management and supervision of primary health centres, ability to work with public health auxiliary workers and ability to mobilize community participation.

In our rural TAT (thematic apperception test) we found that enthusiastic or idealistic outlook (E) decreased during internship probably indicating the development of more realistic attitudes to rural conditions.

Unfavourable reference or association to villagers or village life (V—) sharply decreased while favourable reference or association to villagers or village life (V+) increased slightly. This indicates a less unfavourable, if not a more favourable, attitude towards rural life after internship.

PH (reference to a public health problem) showed an encouraging increase.

It is felt, therefore, that there is no reason to think that rural internships are total failures.

It is moreover *recommended* that:

- 7. Rural internship programmes with major emphasis on community health should require three months of working and living in rural health centres.
- 8. This programme should involve the active participation of both the

Preventive and Social Medicine and clinical departments with the active interest and support of the Dean or Principal of the medical college. The clinical departments can be effectively involved in co-operative field studies and in running speciality clinics in the rural health teaching centres.

- 9. Small groups of 2-4 interns should be given responsibility for the comprehensive health care of specific villages.

Influence of Rural and Economic Backgrounds

Interns coming from a rural background had more interest in primary health centres than those with urban backgrounds. Out of 10 choices, the primary health centre ranked sixth in interest for those with rural backgrounds, tenth for those with urban backgrounds and eighth for those with mixed backgrounds.

Interns whose father/guardian's income was less than Rs 200 per month reported greater interest in primary health centre service than those from high income families as shown by a gradual decrease in interest in primary health centres with increase in father/guardian's income.

Therefore it is *recommended* that:

- 10. Candidates for medical college who have a rural background and candidates from families with middle and low income levels be given preference as long as they satisfy other criteria for admission to medical college;
- 11. Stipends be made available in order to make it financially possible for them to attend medical colleges;
- 12. A programme of vocational guidance and counselling about rural medical service be set up which should be focused mainly in rural high schools.

Previous Knowledge of PHCs

Only 55 per cent of the interns had visited a primary health centre before being posted to the rural internship. There was a general tendency among interns who had visited

primary health centres during their medical course to rate the importance of public health activities and administrative responsibilities of primary health centre physicians higher than those who had not visited. Interns who had never visited a primary health centre prior to internship tended to score higher the conditions requiring compulsion than did interns who had made such visits.

It is *recommended* that:

13. During undergraduate training, students should be made familiar with the working of well-run primary health centres and, for this purpose, the medical college should assume responsibility for assisting in the development of such primary health centres in their areas.

PHS Service Conditions

The rural internship represents a crucial period in career choice during which doctors are particularly concerned about professional considerations. In probing the conditions under which interns would be willing to serve in a primary health centre it was found that the importance attached to maintaining good professional standards without regard for improved living conditions ranked third; as contrasted to the importance attached to provisions for liberal rural allowance and personal comforts without significant improvement in professional opportunities which was ranked seventh out of a list of 11 possibilities.

To interns, the most salient deficiency of primary health centres is the inadequacy of drugs and supplies which was ranked first and equipment which was ranked third in a list of 27 obstacles to rural service. These rate considerably higher in their minds than such items as the inadequacy of PHC buildings which was ranked eighteenth.

Ranking second in the priority listing of deterrents to acceptance of rural service is 'lack of educational facilities for children'.

Ranking next in order of importance are a group of service conditions indicating concern about their professional future. 'Lack of opportunity for professional advancement' ranked fourth and 'lack of opportunity for post-graduate education' ranked

fifth. These findings correlate with the question concerning the conditions under which interns would be willing to serve in a primary health centre. The fear of getting stuck in a village ranked second only to improving both professional standards and living conditions.

Lack of financial remuneration has long been recognized to be a dominant concern for young doctors considering rural service. This was ranked eighth out of the list of 27 obstacles to rural service. Even more definite is information where interns ranked financial remuneration third and job security fourth among considerations influencing their career choices.

Therefore in considering incentives for service in PHCs it is *recommended* that:

14. Provision of drugs, supplies and equipment in adequate quantity and quality for all primary health centres be the first administrative priority for State Governments;
15. Some mechanism be provided for subsidizing education of primary health centre doctors' children, such as children's education allowances or special subsidized schools;
16. Transportation facilities be provided to meet the PHC doctors' professional requirements such as referral of patients and consultant visits and that this transport be available for his personal use at minimum cost;
17. To ensure professional advancement of PHC doctors, a common cadre of health and medical service should be established;
18. Primary health centre physicians should be given a guarantee that after completing satisfactorily a period of rural service they will be given preference for:
 - (a) Professional advancement in hospital positions;
 - (b) Post-graduate education in India;
 - (c) Fellowships for study abroad;If they remain in PHC service, the doctors should be given accelerated increments;

19. Those medical students who volunteer for work in rural health centres should be taken into government service and their salary started after passing the final M.B.B.S. examination. They would then be expected to start work in primary health centres after completing their regular internship and the year of apprenticeship as recommended later on;
20. Journals and medical publications should be routinely provided by the government to all PHC doctors;
21. A special rural allowance of not less than Rs 150 per month be added to all other allowances now available for primary health centre doctors;
22. Continuous professional stimulation and guidance be provided through a regular programme of medical meetings and the visits of specialists from district hospitals and medical colleges. In fact, it would be most desirable for each medical college to take responsibility for maintaining an effective two-way flow of communication, consultation and referral with the doctors of all primary health centres in adjacent regions;
23. Professional growth should be promoted by means of periodic in-service training including seminars, refresher courses and visits to taluk and district hospitals and medical colleges;
24. Housing should be provided on a high-priority basis and should be a model for rural development in sanitation, living space and in being adapted to local and climatic conditions;
25. All these incentives should be widely publicized in medical colleges.

Staffing Patterns of Primary Health Centres

The interns' image of the primary health centre physicians' responsibilities and working conditions is an important determinant of whether they will choose this form of service. Interns were not bothered about the prospect of heavy out-patient loads and they indicated great reluctance to surrender clinical responsibility to auxiliaries. However, excessive clinical loads were recognized by the participants as obstacles to the practice of overall community medicine. Therefore it was *recommended* that:

26. Specially trained para-medical workers be provided to look after repeat visits of cases referred to them by the doctor;
27. Research should be done on appropriate mechanisms for determining the role of the para-medical worker in the initial screening and simple care of the large numbers of minor illnesses now overwhelming the resources of many primary health centres;
28. Senior clerical assistants be provided to look after routine reports, vital statistics, indents, stores, accounts, etc.;
29. Clear lines of authority at all levels (PHC, Block, District and Directorate) be laid down.

It was also *recommended* that:

30. Prior to posting to primary health centres, doctors should undergo one year of work experience under a senior physician in a government hospital so that he will gain administrative skills and clinical maturity. This year should include a period of two to three months of orientation to rural health service as an additional programme to the rural internship.

TABLE I

Percentage distribution of interns by the degree of agreement with various conditions for serving in primary health centre, before and after the rural internship and also by the direction of change after the internship (reference period 1964).

Conditions	Agreement Scale				Mean	N	Direction of change			N
	1	2	3	4			Low	Equal	High	
7.1 I would leave medical practice rather than go to rural areas ...	B 66 A 60	18 20	10 13	5 7	1.55 1.68	483 447	17	58	26	432
7.2 I would accept a primary health centre job only if my family were in urgent need of financial help	B 43 A 33	17 19	25 28	15 20	2.13 2.35	484 417	19	50	31	432
7.3 I would go only if legally required for one or two years before registration	B 39 A 31	13 15	22 26	25 28	2.34 2.52	482 447	22	48	31	432
7.4 I would work in a primary health centre only if I cannot find work elsewhere	B 45 A 38	13 17	21 23	20 22	2.17 2.28	483 447	21	50	29	431
7.5 I would work in a primary health centre if this was the only way of advancement in government service	B 47 A 42	16 17	20 27	17 15	2.07 2.15	484 447	24	48	28	432
7.6 I would work under present conditions if I knew I would not be stuck in village for life	B 27 A 22	11 17	29 29	33 32	2.67 2.72	484 446	24	49	27	431
7.7 I would go only if permitted to live in a nearby city	B 35 A 30	13 18	31 33	21 20	2.38 2.43	484 447	24	50	26	432
7.8 I would go if there was some improvement in both professional standards and living conditions	B 7 A 11	7 8	31 32	55 50	3.33 3.21	484 446	27	53	20	431
7.9 I would go if a liberal allowance and provision for personal comforts were provided but without significant improvement in present professional opportunities	B 35 A 28	16 25	36 34	13 13	2.27 2.31	484 446	31	42	27	431
7.10 I would go if facilities for maintaining good quality professional standards were provided and without particular regard for improved living conditions	B 19 A 16	18 23	37 39	26 23	2.71 2.69	484 447	33	37	30	432
7.11 I am willing to sacrifice both personal and professional considerations indefinitely	B 67 A 71	13 15	13 10	7 4	1.60 1.47	484 446	19	67	13	431
7.12 Do you think you might change your opinion if you knew more about primary health centre work?	B 57 A 37	43 63				478 446				

1—Disagree, 2—Partially disagree, 3—Partially agree, 4—Agree, B = Before, A = After.

TABLE II

Percentage distribution of interns by the degree of importance of various factors influencing unfavourably in serving in a primary health centre, before and after the rural internship and also by the direction of change after the internship.

(Reference Period 1964)

Factors	Importance Scale				Mean	N	Direction of change			N
	1	2	3	4			Low	Equal	High	
9.1 Lack of opportunity for post-graduate education.	B 10 A 6	9 11	28 31	53 53	3.23 3.30	483 451	21	57	22	437
9.2 Problems with personal grooming and appearance.	B 30 A 24	34 38	27 31	9 8	2.15 2.23	481 450	24	46	30	436
9.3 Unsuitable Housing.	B 6 A 6	20 19	40 45	33 30	3.00 2.99	483 451	23	53	25	437
9.4 Lack of opportunities for professional advancement.	B 2 A 2	10 10	32 37	55 51	3.40 3.37	482 449	21	63	17	435
9.5 Inadequate equipment.	B 2 A 2	9 9	33 39	56 50	3.43 3.38	483 451	23	55	22	437
9.6 Objections of wife/husband (even if unmarried).	B 25 A 25	23 26	32 28	20 21	2.46 2.44	480 450	27	45	29	437
9.7 Objections of other family members.	B 25 A 27	28 35	27 26	10 12	2.13 2.23	481 450	22	47	31	436
9.8 Inadequate primary health center buildings.	B 12 A 12	32 30	35 43	21 16	2.64 2.63	482 451	31	40	30	437
9.9 Lack of medical meetings and stimulating professional contacts.	B 4 A 4	15 20	36 41	45 35	3.22 3.06	482 451	31	48	21	437
9.10 Lack of transportation facilities and communication with urban areas.	B 2 A 3	15 14	36 39	46 44	3.26 3.24	481 451	24	51	24	437
9.11 Inadequate drugs and supplies.	B A 1	5 5	29 27	66 68	3.60 3.61	483 451	14	68	18	437
9.12 Difficulty of access to libraries reference materials, and research facilities.	B 4 A 4	14 15	38 42	44 39	3.22 3.16	483 449	29	48	23	435
9.13 Lack of social activities and recreational facilities.	B 9 A 9	25 31	43 39	23 21	2.80 2.71	483 449	31	47	22	435
9.14 Not enough pay.	B 12 A 8	13 17	34 35	41 40	3.04 3.08	483 449	20	56	23	435
9.15 Poor quality professional assistants.	B 6 A 4	22 23	42 45	30 27	2.95 2.97	483 449	26	47	27	435
9.16 Lack of variety in clinical work.	B 13 A 9	27 22	37 48	23 20	2.70 2.80	482 450	25	41	35	437
9.17 Lack of educational facilities for children.	B 1 A 2	8 10	28 31	63 57	3.53 3.44	482 450	22	63	15	437
9.18 Lack of consultants.	B 9 A 6	20 23	47 46	23 24	2.85 2.89	482 450	24	52	24	437

Factors	Importance Scale				Mean	N	Direction of change				
	1	2	3	4			Low	Equal	High	N	
9.19 Health hazards for family.	B	12	27	37	23	2.72	482	28	44	28	436
	A	10	30	39	21	2.70	450				
9.20 Being supervised by non-medical persons such as Block Development Officers.	B	18	20	19	43	2.87	482	19	52	29	433
	A	16	17	20	47	2.98	446				
9.21 Too many patients.	B	56	23	17	4	1.70	482	19	55	26	437
	A	52	21	22	5	1.80	451				
9.22 Fear of losing clinical skill.	B	22	25	30	24	2.56	481	28	43	29	437
	A	20	26	32	22	2.57	451				
9.23 Too few patients.	B	40	23	22	15	2.13	481	30	47	23	436
	A	44	22	22	11	2.01	450				
9.24 Fear for personal safety.	B	39	24	20	16	2.14	482	25	48	27	436
	A	35	25	26	14	2.20	450				
9.25 Political interference.	B	30	18	19	33	2.55	481	19	51	30	437
	A	24	20	19	37	2.68	451				
9.26 Involvement in medicolegal work.	B	28	29	25	18	2.31	483	23	48	30	437
	A	25	25	32	17	2.42	451				
9.27 Living in a village.	B	40	29	18	13	2.05	328	19	50	31	293
	A	34	22	31	12	2.22	305				

B = Before; A = After; 1 = Not important; 2 = Slightly important;
3 = Moderately important; 4 = Very important.