

SECTION III

SOME INFLUENCES ON DRUG PRESCRIBING

12

There is no doubt that because of the availability of psychotropic drugs general practitioners have become increasingly involved in the management of psychiatric illness. It is, therefore, all the more important that they should be aware of the responsibility of this rôle, which requires a thorough knowledge and intelligent use of these drugs. Unfortunately, one of the most difficult problems in psychiatry is the assessment of therapy, whether the treatment is psychological, physical or chemical. In making such assessments, bias, either intentional or unintentional, is often introduced by preconceived ideas of what results can be expected. These ideas are influenced by the climate of opinion and fashions of research and treatment, as well as by drug promotion. To understand such pressures it is necessary to consider the more important factors which influence prescribing by general practitioners. Not enough is known about these, particularly their influence upon the prescribing patterns of individual practitioners: even less is known about changes that may take place over time. Despite the existence of the National Health Service since July, 1948 relatively little research has been carried out on these problems.

This chapter reviews some of the principal enquiries carried out and examines some of the influences. Since Dunlop in 1952 suggested that good prescribing may be related to economic prescribing, many of these projects were related to cost but no relationship between cost and standard of prescribing was demonstrated.

Some factors which influence prescribing

1. The Department of Health and Social Security.
2. Regional influences and age and sex structure of the population.
3. Age of doctor and list size.
4. Prescribing and morbidity.
5. Doctors' attitudes and experiences.
6. The availability of a drug.
7. The work-load of the general practitioner.
8. The National Health Service.
9. The sources and influence of therapeutic knowledge.
10. Habit prescribing.
11. Diffusion of innovation.
12. Attitudes towards psychotropic drug therapy.

1. The Department of Health and Social Security

The Department of Health and Social Security obtain information on prescribing by analysing approximately one in 200 prescriptions submitted for pricing by chemist contractors. Information about total numbers and costs of prescriptions dispensed in different areas is obtained as a by-product of the pricing scheme. In addition, for one month in each year, for each executive council area, the total number and cost of prescriptions ordered by each NHS doctor are obtained as part of the general procedure for monitoring the prescribing costs of all general practitioners. Efforts to influence prescribing, based on this sample data, are by persuasion because the National Health Service

general practitioner has the right to prescribe whatever drugs he may consider necessary for the proper treatment of his patients. This freedom is subject only to the proviso that where his prescribing costs appear to be unnecessarily high in relation to those costs of the majority of doctors practising under comparable conditions the Department may refer the case for examination by the local medical committee of the executive council area in which he practices. If the committee finds that excessive prescribing has occurred, subject to the doctor's right of appeal, the Department may direct the executive council to withhold an appropriate amount of remuneration. Less than a dozen or so cases in England and Wales are investigated by local medical committees each year because this procedure is introduced only after a series of informal visits by regional medical officers, designed to help and advise a doctor whose costs seem unreasonably high to prescribe more economically. This procedure is said to reduce the cost of prescribing by about £750,000 to £1,250,000 a year. The deterrent effects cannot, however, be calculated. In 1969 the Department's regional medical officers paid 2,979 visits to doctors to discuss specific matters on prescribing. The Department is also concerned with the collection of information which will help to identify current prescribing trends, particularly of drugs which are potentially harmful. Information is also collected about abnormal patterns of prescribing of new drugs. This procedure has been stepped up in the past two years and in 1969, for example, four cases involving grossly excessive or irresponsible prescribing of drugs of dependence were reported to the General Medical Council.

The Department therefore applies psychological sanctions by the very existence of its machinery. Over the past two decades there has been a progressive emphasis in Departmental policy towards a more educational approach by regional medical officers and little can be added to Martin's comment in 1957: "It is difficult to see how legislation could go any further in attempting to meet the needs of individual cases". However, despite the ever-increasing cost of prescribing the Department may not have failed in its efforts to have an influence on cost but if it relates economy to goodness then are the majority of prescribing doctors bad prescribers?

2. *Regional influences and age and sex structure of the population*

For drugs in most therapeutic groups the average net ingredient costs rise annually and there is an increase in the proportionate use of the more expensive drugs. It is also recognized that there are substantial variations from region to region and from town to town in the number of prescriptions issued per head of population. Parallel variations are also found between practices and between partners in various practices. Dunlop *et al.* (1953) examined one per cent of all prescriptions issued in Scotland in October, 1951, by general practitioners in 25 executive council areas. They found wide variations between different areas in the number of prescriptions issued per unit of population, with little variation in the type of drug prescribed. They noted a relationship between prescription rate and population density and that prescription rate varied with the list size. Since there is a statistical correlation between list size and population density they concluded that there was an intimate interrelationship between these three factors—prescribing rate, population density and list size. They suggested that the correlation between prescription rate and population density was an overall relationship, because population density is associated with but not necessarily dependent upon such factors as the availability of the doctor, differential morbidity, attitude of the patient to disease and list size; also that to assess accurately the significance of list sizes on prescription rate it would be necessary to obtain figures for prescription rates in large as opposed to small practices amongst populations of similar density. Grant and Cartwright (1954) suggested that frequency of prescribing might be related both to the degree of urbanization of an area and to the mean list size of doctors prescribing in it and also the age and sex structure of the population.

National Health Service Prescribing Trends (1964) reported that differences between regions in the three prescribing averages, cost per person, prescription frequency and cost per prescription, remained fairly constant over a four-year period. Those regions with high overall costs per prescription tended to have high costs per prescription for many therapeutic groups. This implied differences between regions in the kinds of drugs ordered and in the quantity ordered per prescription. Because of lack of information about the diagnoses for which the drugs were prescribed these results could not be investigated further. There was some evidence indicating that these differences were partly associated with factors other than morbidity since the regional differences in net ingredient cost per prescription held good over seemingly unrelated therapeutic groups and sub-groups. The regional ranking orders for death rates (1960) and rates of sickness spells (1955–56) were more closely associated with the regional ranking order for prescriptions than with that for cost per prescription. This accords with the general expectation that these kinds of differences were more likely to result in regional differences in the frequency of prescribing rather than in cost per prescription. The age and sex distribution of the populations concerned (June 1961) did not exhibit any obvious factors which were confined to both high cost regions and low cost regions.

In 1964 Lee *et al* carried out a survey of patterns of prescribing in three towns. They reported that the proportionate distribution of the drugs prescribed was similar in each town and also for England and Wales as a whole; they concluded that these results did not encourage the search for differences in the distribution of particular diseases as a major cause for the very large variation in the prescribing rates and costs. An enquiry into prescribing costs between a high and low cost area in 1970 carried out by the Statistical and Research Division of the DHSS produced little of significance. Some prescribers in the high cost area prescribed larger quantities and used more expensive proprietary drugs with greater frequency. Their enquiry could attach no significance to treatment within age categories of patients and diagnostic groups; although the report gave many examples of wide variations of average costs within age–sex groups. Thus there may be a general pattern of prescribing behaviour in response to the needs of a given area, but as yet no work done has been able to identify this.

3. *Age of doctor and list size*

Benjamin and Ash (1964) sampled the prescribing of 3,150 doctors in 29 executive council areas. One month's prescribing data for each doctor was analysed and this information was correlated with other data about the doctor's practice characteristics—*eg*, number of partners, age of doctor and National Health Service list size. They found cost per person for the youngest doctors in low cost areas to be about the same as cost per person for the oldest doctor in the high cost areas and this suggests that the association between prescribing costs and age is independent of an area differential. There was no apparent association between cost per prescription and list size but the average frequency per person tended to fall with increased list size of the prescriber. Significant interaction between age and list size was not present. There was a higher average prescription frequency amongst women practitioners. Their survey produced few indications of any strong association between the age and sex ratios of patients (grouped by list size) and the relative levels of doctors' prescribing costs. Such trends which did appear gave little useful information because of considerable variations between the corresponding age and sex percentages for individual doctors with similar prescribing costs (relative to the corresponding real averages). Draper (1964) found a clear relationship between age and total list size—older doctors having fewer patients. Another relationship with increasing age was a tendency to prescribe a smaller proportion of drugs by their proprietary names. Similarly Benjamin and Ash (1964) found that both prescription frequency and cost per prescription were lower for older doctors than for the younger doctors.

4. *Prescribing and morbidity*

What has long been needed is a survey of prescribing patterns linked with a morbidity survey: Doll (1964) has pointed out—"What is wanted now is some means of identifying the patient to whom the prescription was given since it is only in this way that we can hope to draw up a proper balance of the beneficial and ill-effects of drugs that are used." The cost of a nation's ill-health can be measured in terms of mortality rates, morbidity rates, duration of illness, cost of lost production, cost of National Insurance and many other similar indices. The cost of drugs prescribed is a relatively small fraction of the whole bill. The duration of an illness needs to be related to the drug treatment of that illness if it is to be noted whether treatment is costly. Unfortunately no satisfactory treatment related morbidity survey has been carried out and until such data are continuously available it will always remain difficult to determine whether various forms of therapy are appropriate and effective.

5. *Doctors' attitudes and experiences*

Joyce *et al* (1968) investigated personal factors as a cause of differences in prescribing by general practitioners. One of their team (J. M. Last), conducted semi-structured interviews with 93 doctors (randomly selected) each with large lists in one of three industrial towns. Small but clear differences appeared between the patterns typical of the three towns surveyed. The protocols were condensed by four judges into 16 quantitative scales. Multi-variant analysis of these three scales yielded three factors of apparent significance, tentatively labelled 'quality of practice', 'whole person orientation' and 'education'. Similar statistical analysis of the prescriptions written by these doctors in a single month yielded two other factors, one related to overall frequency of prescribing, the other to the prescribing of individually formulated remedies. The attributes of doctors extracted from the interviews were:—(1) adequacy of training; (2) impressiveness of qualifications; (3) organization of practice; (4) work-load; (5) distribution of work-load; (6) psychosocial awareness; (7) holistic approach; (8) quality of sources of information; (9) integration into the National Health Service; (10) satisfaction; (11) consistency of answers; (12) security; (13) existence of special interests; (14) attitude to change; (15) non-conformity; (16) overall quality of practice. The results of this survey were disappointing and produced little of significance. It was estimated that not more than 15 per cent of the variations in individual patterns of prescribing could have been accounted for by the personal factors studied with the help of the interview. In general, higher educational qualifications and an orientation towards the whole person were associated with lower prescribing of drugs of all kinds.

Dunnell (1971) reports that most general practitioners acknowledge that self-treatment is appropriate and necessary and they try to encourage it and to educate their patients. However, she found no evidence that the doctors' efforts influenced their patients' medicine-taking behaviour. More than half the general practitioners in her survey felt that they would write fewer prescriptions if they had more time. Since a prescription is issued at about two thirds of all consultations (Grey and Cartwright 1964, Dunnell 1971) there is obvious need for future research into the rôle of drug prescribing in the doctor-patient transaction. This must concern itself with trying to understand the place and meaning of drug therapy in the process of symptom presentation, professional examination, diagnosis and treatment with particular reference to the rôle, attitudes and expectations of both patient and doctor.

The doctor-patient relationship is still the best therapeutic approach to the emotionally troubled person and there is no doubt that the doctor's attitude influences this relationship. Koos (1955) high-lighted "the aura of impersonality which pervaded the highly technical medical care available today" and commented "that the techniques of human relations in medicine demand revision". Wolfe (1963) found that general practi-

tioners who had only one year of postgraduate hospital training, had other characteristics that seemingly could be related to their earlier departure from the training setting. They were more likely to express, often vehemently, feelings of being imposed upon, and of being victimized by either patients, colleagues, institutions, or organizations. He asks whether these kinds of physicians select themselves out for earlier entry into practice because of their attitudes to, say, authority, relationships in their training centres, and whether longer training would alter the above attitudes. These would appear to be a fruitful area for investigation. Further, the effects of earlier economic pressures on subsequent attitudes held, and on early departure from postgraduate training, are largely unexplored. Wolfe reported that the general practitioners who came from lower and lower-middle class origins and who returned to these districts to practise, were more intolerant of the behaviour of the people whose origins they shared. "They perhaps had learned in their training to regard certain of their own former behaviours as 'bad', rather than as 'caused' as they climbed the ladder of success". Thus a group of related variables affect the general practitioner's attitudes towards the management of his patients, particularly those suffering from mental disorders. These attitudes also influence his prescribing of drugs and therefore future research must examine these attitudes if it is hoped to identify some of the factors which are leading to an ever increasing reliance upon drug therapy in the treatment of psychiatric disorders.

6. *The availability of a drug*

Usually when one drug falls out of favour it is replaced by another. The fall in prescribing of barbiturates has been replaced by an increased prescribing of non-barbiturates, the fall in prescribing of 'sedatives' has been replaced by an increased prescribing of 'minor tranquillizers' and the fall in prescribing of mono-amine oxidase inhibitors has been replaced by an increased prescribing of tricyclic drugs. Not only does availability appear to influence the prescribing of a drug it also creates a 'swing' towards any alternative drug in excess of the previous prescribing rates of the drug replaced. This is demonstrated by looking at the shares of the market held by certain drugs; where there is market 'saturation' by one drug (*ie*, prescribing has reached a peak and then levelled off) the introduction of a new drug (pharmacologically identical) results in an increased prescribing of the new drug in addition to the steady level of prescribing of the previous drug. It appears that the availability of a drug may create its own demand. This prescribing of a drug because it is available is also reflected in authoritative statements made by various professional bodies. For example, it is generally accepted that there are few indications for the use of appetite suppressant drugs in the treatment of obesity. Yet the British Medical Association working party (1968) while condemning 'stimulant' appetite suppressants mentioned fenfluramine as an alternative.

7. *The work-load of the general practitioner*

Many argue that the increased prescribing of drugs is related to pressure of work in general practice. However, this is difficult to reconcile with the increased prescribing of new products and current data available on work-load. During the period 1963-1968 (for which the prescribing rates are quoted) general practice in this country underwent remarkable changes due to many factors: increased formation of group practices, increased use of health centres, increased use of ancillary staff, increased deployment of local authority staff in general practice, increased adoption of appointment systems and a decrease in home visiting by general practitioners. There is also evidence that the number of doctor-patient contacts has remained the same or fallen over this period (RCGP 1970). This evidence suggests a decreased work-load and yet the prescribing trends generally show an increased use of drugs in the general practitioners' treatment of their patients.

The number of middle-aged general practitioners increased between 1963–68; also there was an absolute as well as a proportionate fall of young general practitioners. It is recognized that attitudes towards mental disorders are influenced by past experiences not the least of which is the influence of teaching. It is also known that the teaching of psychiatry, human relations and allied subjects was limited until recently. It is only to be expected that most general practitioners in practice today had no formal training in learning to manage the burden of mental disorders and common anxieties which exist in the community (though many will have learned by experience). Further, the therapeutic revolution in psychotropic drug therapy of psychiatric disorders has only taken place over the past 15 years. From such findings is it not possible to argue that ‘pressure of advertising’ rather than ‘pressure of work’ has influenced prescribing?

8. *The National Health Service*

Throughout the existence of the National Health Service there has been a widely held opinion that in some degree the service was being abused by patients. It is often suggested that the free availability of drugs and services have created the increased demand, even suicide from barbiturate over-dose has been blamed on the National Health Service (Stengel 1960). Many ask “Why do patients take so many drugs?” In reply one must ask “Why do so many general practitioners prescribe them?” When a patient receives a prescription for a drug it has been issued by a registered medical practitioner, whom, in the light of his training, experience and knowledge decides to prescribe that particular drug for that particular patient at that particular time. He does this of his own volition: Does the fact that the National Health Service exists influence his action in that particular transaction? Dunnell (1971) reported that four fifths of persons had taken or used some kind of medicine in the two weeks before interview. For every prescribed item taken in the two weeks, two non-prescribed items had been taken; every day more than half the adult population and nearly one third of the children take or use some kind of medicine. She found that self medication was more prevalent than prescribed medication.

If the existence of facilities within the National Health Service did play such a large part in overprescribing as some claim then it could be predicted that in countries where there is no ‘free’ service, the prescribing rates should be less. Information about prescribing in other countries suggest otherwise. A WHO survey in 1970 showed that each year the quantity and price of prescriptions for drugs is rising sharply in Europe. In the United States in 1965 some 58 million new prescriptions and 108 million refills were written for psychotropic drugs and these 166 million prescriptions accounted for about 14 per cent of the total prescriptions of all kinds written in the United States in that year. Indeed, for the years 1963–65, psychotropic drugs accounted for a steady 14 per cent of all prescriptions, at a yearly cost rising from \$511 million in 1963 to \$589 million in 1965 (Parry 1968). Parry also quotes evidence from two surveys of national samples which suggest that about one of four US adults used one or more kinds of psychotropic drugs. Nearly half the US adult population reported the use of a psychotropic drug at some time. Stimulants are used by the smallest proportion, sedatives by a large proportion and tranquillizers by the largest group. According to Parry cumulative use of tranquillizers over a decade has shown a steady increase—from about seven per cent of the population in 1957 to about 27 per cent in 1967.

Finally, instead of blaming the National Health Service as a causative factor it will be more purposeful in future to enquire into why some persons attend their general practitioners for treatment and others do not.

9. *The sources and influence of therapeutic knowledge*

a. *Medical training.* Medical students are introduced to the principles of drug therapy during their medical school training, yet because of the rapid advances in thera-

peutics, much of this knowledge becomes outdated within a short period after graduation. Thus most general practitioners qualified before the introduction of many drugs that they now use. During their training they were taught a method of diagnosis which lasts them throughout their clinical life. However, whilst these skills remain much the same, the most complex and effective drugs are becoming available, each with its own indications and contra-indications, special effects and side-effects and with an ever increasing hazard of producing adverse drug effects and interactions. Each new drug is vigorously marketed and promoted and it is very necessary that the present-day general practitioner should be as well trained in drug therapy as he is in his clinical skills, so that he will be able to evaluate and assess any claims made for a promoted drug.

Medical schools do not appear to recognize their responsibility even though many authorities now recognize the poor 'training' in prescribing given to medical students who eventually become general practitioners (Naess 1970). It has been claimed that few doctors qualifying in this country are trained to prescribe, in any real sense of the term 'trained'. One or two medical schools are attempting to correct these deficiencies with lectures on such topics as evaluation of drug advertising, and evaluation of clinical trials. Such attempts though praiseworthy are too limited and most schools still adhere to traditional teaching programmes. Until medical schools develop proper attitudes towards drug therapy amongst their students and train them to realize the socio-economic aspects of drug promotion and drug therapy it is likely that they will continue to produce medical graduates unprepared for a lifetime of drug prescribing and associated promotional sales pressures. Postgraduate education has recently improved but still falls sadly short of optimal standards. For example, out of 33,299 attendances by 13,629 general practitioners at approved courses in 1968-69 only 84 attendances were for specific instruction in therapeutics (DHSS 1970).

b. *Sources of therapeutic knowledge in general practice.* The market life of a newly introduced drug product averages only about five years and 70 per cent of currently marketed drugs were either unknown or unavailable 15 years ago, when more than half the nation's physicians were receiving their pharmacology training in medical school (Task force on prescription drugs 1968, USA). In this setting the general practitioner has need for objective data on drug efficacy, yet he is bombarded by an ever-increasing amount of drug information from official and unofficial sources. Amongst these are the following:

Non-official sources

- (i) Mailings of drug advertising.
- (ii) Medical journals with a controlled circulation, sent free to general practitioners and supported almost entirely by drug advertising. Many of these have been launched in recent years and combine medical data with a mass of drug advertisements; amongst these can be included the numerous general practitioner newspapers.
- (iii) Visits from pharmaceutical company representatives. Medical representatives are the "best and most effective means of producing a sale or a prescription" (George Squibb, quoted in Task Force on Prescription Drugs 1968). At present, they represent the core of the industry's selling programme and although many will claim that they act as therapeutic educators, it is not difficult to hypothesize that they do in fact carry out this function.
- (iv) Drug compendia such as the *Monthly Index of Medical Specialities (MIMS)* which is a "professionally edited index of ethical preparations available for prescription in the United Kingdom". It lists proprietary drugs under the various bodily systems and gives their approved name, dose and cost along with indications and contra-indications.

- (v) Postgraduate seminars, film shows, lunches and dinners organized by pharmaceutical companies. These have increased in recent years and reflect a change in the marketing methods of the pharmaceutical companies from the previous hard selling of a firm's product to the soft selling techniques which involve the provision of services and the selling of concepts. Some companies provide excellent educational facilities but it ought not to be forgotten that drug firms are in business to sell drugs. These methods are often referred to by the pharmaceutical companies as "below the line" activities.

Official sources

- (i) Journals of general medical interest which are paid for by individual subscription (eg, the *British Medical Journal*, the *Practitioner*). Many of these journals obtain substantial support from drug advertising. They often carry reports of drug trials which, because they are sponsored, need careful evaluation.
- (ii) Official publications—
 - a. *The British National Formulary* (BNF) (1968) published by the British Medical Association and the Pharmaceutical Press. This is aimed at providing advice and guidance on the selection and use of drugs and contains monographs on such topics as 'dependence on drugs' and 'adverse reaction to drugs'. Its main aim of trying to persuade the doctor to prescribe approved preparations has failed since at least 70 per cent of all prescriptions are for proprietary preparations, many of them having been introduced over the past five years. As far as updating of drug information the *BNF* is unable to compete with its well used alternative *MIMS*.
 - b. *The British Pharmaceutical Codex* (1968) is a "book of reference for those engaged in prescribing and dispensing medicine". It is bulky, official looking and seldom used in general practice.
 - c. *Prescribers Journal* is an independent journal compiled by a representative committee of management supported by an advisory panel drawn from medical schools, the Royal College, the Pharmaceutical Society and the Department of Health and Social Security. It is circulated free to all medical practitioners six times a year. Its general aim of providing unbiased observations on therapeutics is giving way to a more academic presentation which will probably lessen its popularity amongst general practitioners.
 - d. *Proplis* was an attempt to classify products by the Standard Joint Committee on the Classification of Proprietary Preparations under the chairmanship of Professor A. G. Macgregor. Its object was to help doctors to decide which drugs should be used in the treatment of their patients. However it failed and was withdrawn in 1970.
 - e. *Histograms* on comparative costs of various preparations have been sent to general practitioners over the past four years with a view to drawing their attention to costs of drugs within the same therapeutic drug group. These graphs only illustrate comparative costs and do not suggest that the various products listed have the same pharmacological action. Eighteen of these histograms were sent out to general practitioners in 1969. Their value has never been assessed.
 - f. *Drug and Therapeutic Bulletin* produced by Consumers' Association purports to give objective reports of new drugs but unfortunately tends to concentrate on the shortcomings and disadvantages of the product it

reviews and is as biased in this direction as a manufacturer's promotional literature is in the other direction.

g. There are other official publications such as the *Drug Tariff*, *Health Trends* and *Executive Council Notes*.

- (iii) The Royal College of General Practitioners which has 7,530 members and associates organizes conferences, seminars, clinical meetings, research projects and publishes a journal every month and occasional special reports. Unfortunately the college has never examined the teaching of therapeutics and has tended to avoid studies in prescribing.
- (iv) Postgraduate teaching. 33,299 officially recorded attendances by 13,629 doctors in England in 1968–69 was an improvement on the 17,466 attendances by 8,881 doctors in 1967–68. These attendances attract grants towards fees and expenses from the Department of Health and Social Security and contribute towards the requirements of the postgraduate training attendance and seniority payments. The introduction of attendances at a stipulated average number of educational sessions as one of the qualifying conditions for seniority payments to general practitioners in October 1968 seems likely to have influenced attendances at both approved and recognized course. However, as noted previously only at 84 of those attendances was special instruction in therapeutics given. Postgraduate centres are increasing and hospitals and medical schools have increased their postgraduate teaching over the past five years. There is obvious and urgent need for courses in therapeutics specifically directed to the principles of drug evaluation, comparisons, selection and use.
- (v) Recommendations from colleagues and consultants influence prescribing but since colleagues are exposed to the same pressures of sales promotion it is doubtful whether they can be regarded as an 'official source' of therapeutic information. There is also a tendency for some consultants to recommend new preparations, as if this indicated a contemporary knowledge or skill greater than that of their colleagues in general practice.
- (vi) Professional society meetings and conventions.
- (vii) Textbooks of pharmacology and therapeutics.

From all these sources of information it is difficult to see how the general practitioner can have access to concise and unbiased information and how he has time to sift out objective data which he needs if he has to make rational therapeutic decisions. Huge sums of money are spent annually to advertise drugs to prescribers and the prescribing patterns and rates of general practitioners indicate how effective these promotional efforts are.

In May, 1965 the Ministry of Health set up a Committee of Enquiry into the relationship of the pharmaceutical industry with the National Health Service under the chairmanship of Lord Sainsbury.

The terms of reference included a study of sales promotions practices. The costs of sales promotion by British and UK based foreign firms of preparations prescribable by the National Health Service practitioners totalled £15.4 million in 1965; of this sum £7 million was spent on representatives, £2.6 million on literature, £1.3 million on samples and the remainder on other promotional activities. Sales promotion unquestionably plays an important part in inducing doctors to prescribe new products and it is, therefore, an important feature in the competition between the various manufacturers to sell their products. The major promotional efforts are directed at general practitioners, who form the largest group of prescribers. The Committee requested the Government Social Survey Unit to study a random sample of 500 general practitioners. This study

showed that information about new products came from representatives (1 in 3), articles and journals (1 in 5), consultants in hospital practice (1 in 7), and advertising literature (1 in 10). A large proportion of general practitioners accept the industry's promotion as the best way of finding out about new drugs. From the survey, it was discovered that for information about the efficacy of drugs, 1 in 3 general practitioners selected articles in journals as the best source, 1 in 4 recommendations from consultants and about 1 in 8 contact with other doctors. One in eight regarded contact with representatives as the best source. Nine out of ten of the general practitioners considered that they received too much promotional literature, 1 in 4 said they wanted no literature. The study found that about one quarter of representatives' visits to general practitioners were ineffective in obtaining an interview and over half of the general practitioners considered that during the past year, there had been occasions when representatives did not have sufficient knowledge about their firm's product. The Committee concluded that some of the sales promotion of pharmaceutical manufacturers fails to measure up to their responsibility of informing doctors adequately about new (and existing) preparations.

10. *Habit prescribing*

Wilson *et al* (1963) carried out a survey of prescribing amongst 31 general practitioners in Liverpool in October 1962 and February 1963. They found a remarkable constancy of prescribing and noted that prescribing remained high and constant for neuroses, rheumatism, chronic bronchitis and peptic ulcer. They investigated the sources of therapeutic knowledge and found a consistency in their use by the whole group as well as a stability of prescribing habit. Wilson concluded that consistency in the use of therapeutic sources together with conformity of diagnosis in two thirds of the disease categories throughout the year, would predispose to the development of a pattern of prescribing in the whole group which would also tend to remain unchanged throughout the year. This pattern would depend upon the selection of individual sources of therapeutic information by the different doctors and upon the incidence of disease in different practices. However, very little is known about consistencies and changes in prescribing habits over time. These may depend upon sources of therapeutic knowledge and so it is possible to hypothesize that the medical representative exerts the greatest influence as a cause of change in prescribing habits?

11. *Diffusion of innovation*

In attempting to understand the influences of various sources of therapeutic knowledge upon prescribing behaviour it is also necessary to examine the factors that affect the flow of therapeutic information and its utilization by general practitioners. This process is usually referred to as 'the diffusion of innovation'; this is the study of change, why and when general practitioners choose to prescribe differently, the choice of drug (adoption) and the diffusion of such knowledge. Most studies in this field have been carried out for marketing divisions of pharmaceutical companies and so may be suspect because any inherent bias by firms or groups with vested financial interests, has not obviously been removed. Sources of information which may influence the general practitioner will depend upon many factors; his personality, the extent of his socialization with his professional colleagues and others such as nurses, pharmacists and medical representatives; his age, reading habits, attitudes and experiences. Patient referral serves as a channel of information transfer from consultants, who also function within a professional network and are exposed to similar pressures and influences like their general-practitioner colleagues. Much of the work so far carried out on diffusion of innovation has been fragmentary and gives little indication of the complex of factors which influence a general practitioner in his everyday choice of drug therapy. There is urgent need to study the sociology of prescribing if any attempt is to be made to identify

these influences. This is particularly important when it is realized that the pharmaceutical companies are attempting to analyse prescribing at practice and practitioner level in order to identify and influence general-practitioner innovators. Only when a better understanding of prescribing influences has been achieved will it be possible to plan an effective on-going programme of therapeutic education for general practitioners.

12. *Attitudes towards psychotropic drug therapy*

The treatment of mental disorders has been revolutionized in recent years by the introduction of new and effective drugs which have led to increased involvement by general practitioners in the treatment of such conditions. There is, however, much misunderstanding about the indications for their use which is further complicated by the confusion that exists about the aetiology of mental disorders and their classification. At present it has to be accepted that much psychotropic drug therapy is symptomatic in so far as it does not cure psychiatric disorders. Yet such use is therapeutically rational because it helps psychiatrically ill patients to cope with the stress and strains of everyday life so helping them to function as active members of society because their symptoms are alleviated. Unfortunately the widespread use of such preparations in our society today indicates that many patients who may not benefit from the drugs' pharmacological actions are being issued with them. In these patients who are often diagnosed as neurotic, there are many non-drug factors which influence response to therapy, not the least important of which is the patient-doctor relationship.

The patient's attitudes to drug therapy are complex and are determined as much by past experiences as by contemporary influences. Jefferys *et al* (1960) studied drug consumption on a housing estate. They found that two out of three persons took non-prescribed medication, that women did so more than men and that these self-prescribers also used their general practitioner more often. The first born and children in smaller rather than large families received more medication, mothers who were themselves high frequency self-medicators gave more to their children and that mothers describing themselves as 'nervous' were more frequent self-medicators.

These findings suggest that people must learn how, when and where to take drugs and as Blum (1968) suggests—"The likelihood of use as well as the kind of response is subject to influences which a learning 'model' encompass".

There has been increasing reference in recent years to the influences of the patient-doctor relationship in drug response, on the effects of placebo prescribing and on the extent of psychological dependency; it is recognized that patients respond to the suggestion of improvement which is involved in the process of being prescribed a drug and in the actual process of drug-taking. These acts of drug prescribing and drug taking may become therapeutic measures in themselves for many doctors and their patients. However, much of what is written about psychotropic drugs contain a set of value judgements untested by inquiry as Blum (1968) observes, "Some conclusions about the therapeutic efficacy of psychotropic drugs appear to be only statements of approval or disapproval of behaviour, without considering how others holding a different relationship to the patient might view the same changes". In assessing the value of these drugs it is therefore essential to control for various non-drug factors; because of the nature of the disorders being treated, much emotion is invested in the expectations of therapy. Klerman (1960) investigated staff attitudes, decision making and the use of drug therapy in a Mental Health Centre in the United States. He found that older physicians especially those with administrative duties, favoured drug therapy; younger doctors were opposed to it. Psychologists and social workers were opposed to drugs, partly because of their inability to prescribe them; as Klerman points out, they were in competition with the psychiatrist for status. There were also indications that psychiatrists prescribed drugs for patients

least like themselves, saving the younger brighter and better educated patients for psychotherapy. A similar finding was reported by Hollingshead and Redlick in 1958, who found that psychotherapy was primarily given to higher status patients and somatic therapies to lower status patients. These observations on the influences of non-drug factors apply particularly to those patients usually labelled as suffering from neuroses and inadequate personalities.

In addition to this large group of patients (in whom the indications for psychotropic drug therapy are uncertain) there is another group of patients in whom psychotropic drug therapy is both indicated and often efficacious. These patients suffer from such conditions as schizophrenia, psychoses and various depressive disorders. Thus there are three groups of patients treated by general practitioners with psychotropic drugs:

1. Patients suffering from disorders usually labelled as 'psychoneuroses'. Some of these patients are emotionally unstable, and they find it difficult to cope with the stresses and strains of everyday life and usually require support. This often takes the form of frequent surgery attendances; it is such patients who stretch the resources of general practice and it is here that recourse to psychotropic drug therapy often occurs.

2. Patients suffering from psychotic illnesses and various depressive and anxiety disorders who respond well to psychotropic drug therapy and who, when their symptoms are controlled, continue to be active members of society.

3. Patients usually under the care of a psychiatrist and for whom the general practitioner is responsible for maintenance drug therapy.

It is difficult to assess the current needs as far as mental health is concerned, yet in society today anxiety, tension states, insomnia, depression and psychosomatic symptoms are common symptoms of stress. Many patients with such symptoms will seek relief by self-medication with alcohol or by drugs obtained on prescription. Unfortunately social acceptance of this mass medication seems to be increasing. As with alcohol, drugs having either a sedative or a stimulating effect upon the central nervous system may be taken with impunity by the great majority of people, but may lead to dependence in certain personalities. The aim of psycho-pharmaco-therapeutics should be to relieve the patient's sick mind of its symptoms so that he can cope with his everyday existence. It is not the purpose of therapeutics to convert a person with 'normal' mood swings into someone who is 'supernormal' and in a state of continuous euphoria or tranquillity. When assessing indications for psychotropic therapy the prescriber ought to know and to recall the modes of breakdown of the human mind. These are few and constant.

"Organic causes produce symptoms, both general and specific, which are typical of themselves, and so lessen the integration of the personality that secondary effects are more probable. Specific endogenous factors, alone or in a favourable environment, can initiate the symptoms that we associate with schizophrenia, cyclothymia, involutional melancholia, obsessional neurosis.

To all such changes, and to a world full of stresses and strains, the predisposed personality can react only along limited lines. With anxiety, hypochondriasis, depression, hysteria, suspiciousness, excitement, anger and aggressiveness, the list is almost complete. If the stress be severe enough, the most secure and stable personality can show such symptoms. In the greater part of the range of ordinary human experience such reactions are the product of a stress situation on one side with some degree of constitutional susceptibility on the other. Certain fear-provoking situations have a specific preference for the production of anxiety syndromes; prolonged physical illness of a minor degree favours hypochondriasis; the conversion symptoms of hysteria are favoured by a localized physical lesion or organ inferiority. Yet in general the specific quality of the reaction is determined more by the constitutional make-up than by environmental factors, though it may have been the latter which in a given case decided breakdown was to occur. These largely inborn determinants are, in fact, nearly always recognizable in the personality, and it is very much easier to predict the type of neurotic reaction to which a well-known personality is liable, than the type of psychotic change he may eventually undergo." (Sargant and Slater 1964).

General assessment is therefore important in determining the indications for and selection of psychotropic drugs. Some patients respond poorly to drug therapy and yet run the risk of becoming dependent upon drugs. Other patients who have previously coped continue to be useful members of society when their symptoms are relieved by

psychotropic drugs. In these patients it is necessary to treat the illness and then not to forget to treat the patient. For those patients who have not coped and who have a history of breakdown under 'everyday stress' it is necessary to treat the 'whole' patient by support, advice and understanding and to use drug therapy as part of a comprehensive care. Since anxiety and depression, as symptoms, permeate throughout the whole symptom complex of normal and abnormal reactions to life it is fundamental to any treatment of any mental disorder to understand and recognize the part that these two symptoms play in normal stress and in mental illness. Unless these are recognized treatment will remain empirical and the burden of care will become ever greater.

Discussion

Any serious evaluation of general practitioners' prescribing and their uses and sources of therapeutic knowledge quickly lead to the conclusion that the channels of diffusion of information are overloaded. As Bauer and Wortzel (1966) suggest, the active general practitioner learns to cope with this environment of information by letting it do some of his work for him. By this they mean that he quickly learns to rely upon commercial drug firms to bring to his notice advances in therapeutics and drugs worthy of trial by him. But they also suggest that as the bulk of advertising increases the general practitioner becomes more selective and spends less time reading and listening to sources of information. However, commercial pressures are obviously effective; the executive councils' pharmaceutical services in England cost the National Health Service £148 million for the year 1968-69 and it is estimated that the cost will be about £166 million for the year 1969-70. During 1969 chemist and appliance contractors dispensed 246 million prescriptions. About 53 million of these were for non-proprietary preparations which indicates the proportion of prescribing of proprietary preparations.

It is not only the taking of prescribed medicines that has increased, the taking of non-prescribed medicines has also increased dramatically over the past decade; in 1968, £80 million worth of non-prescribed medicines were purchased and there is every indication that this rise is continuing. Since the taking of non-prescribed medicine is more prevalent than the taking of prescribed medicine, there must be many factors influencing medicine taking outside the framework of general practice. Attempts by general practitioners to influence self-medication amongst their patients appear to be ineffective and since only one third of illness episodes are presented to the general practitioner it would appear that self-treatment is uninfluenced by practising doctors' attitudes and concepts.

The evidence that self-medication is more prevalent than prescribed medicine taking in no way detracts from the problems of prescribing in general practice; in view of the increasing prescribing of new and costly drugs by general practitioners, it would appear that common influences may be at work. What are the influences that are leading general practitioners towards an increasing use of drugs? Are they practising rational and appropriate therapeutics and do they appreciate the expense and hazards of complex contemporary drugs? Attitudes towards drug therapy develop as the result of past experiences (*eg*, medical education) and contemporary influences (*eg*, drug promotion). Since the increasing cost of the pharmaceutical services may be related to the prescribing of new and expensive preparations it is possible to develop two primary hypotheses:

1. that medical education in general and the teaching of pharmacology and therapeutics in particular, have little permanent effect upon general practitioners' attitudes towards drug therapy.

2. that sales promotion of drugs by the pharmaceutical companies exerts the greatest influence upon general practitioner prescribing and that the official sources of therapeutic data (eg, the Department of Health and Social Security, university departments, the Pharmaceutical Society) have a marginal influence in comparison.

Finally, in addition to medical training and drug sales promotion, there are many other factors which influence the general practitioner in his attitudes towards drug therapy. Amongst these are the processes of socialization and professionalization which the young general practitioner undergoes as he moves through his medical training and out into general practice. These are the various agencies amongst which he finds himself at certain identifiable stages in his career. For example, during his pre-registration hospital appointments he learns from other members of the unit on which he works, particularly senior colleagues and nursing staff. During his early years in general practice he comes under the influence of general-practitioner colleagues, consultant colleagues, medical representatives, nurses, patients, and pharmacists. Agencies of continuing influence are consultant colleagues and medical representatives. Medical literature (official and unofficial) and sales promotion of drugs have a continuing effect upon his prescribing throughout his career. His prescribing behaviour is finally determined by the effect of all these influences and the attitudes he develops towards them and towards drug therapy.

SECTION IV

OVERVIEW

13

OVERVIEW

The prescribing of psychotropic drugs has increased by about four per cent per annum since 1965. Non-barbiturate hypnotics show the greatest percentage increase in annual prescribing of around 20 per cent, followed by antidepressants (13 per cent) and tranquillizers (10 per cent). About four in five of the 47·2 million psychotropic drug prescriptions dispensed under the National Health Service in England and Wales in 1970 were for hypno-sedatives or tranquillizers. This indicates that depression of the central nervous system is a major therapeutic aim in contemporary therapeutics. In order to produce this effect, general practitioners are prescribing increasingly costly and complex chemicals, most of them introduced over the past five to ten years. For example, the increase in psychotropic drug prescribing over the second half of the last decade can be directly related to the increased prescribing of four such drugs:

Librium (chlordiazepoxide)—introduced in 1960

Valium (diazepam)—introduced in 1963

Mogadon (nitrazepam)—introduced in 1965

Mandrax (methaqualone and diphenhydramine)—introduced in 1965

In 1970 4·8 million prescriptions for Librium were dispensed in England alone, 4·3 million for Valium, 2·5 million for Mogadon and 2·3 million for Mandrax. This means that nearly one in three psychotropic drug prescriptions dispensed in 1970 were for these four drugs. Three of them, Librium, Valium, and Mogadon are benzodiazepines, possess similar pharmacological profiles and are manufactured by the same company. Mandrax is manufactured by a different company and marketed as a non-barbiturate hypnotic.