

CONSUMPTION OF MEDICINES ON A WORKING-CLASS HOUSING ESTATE

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In the first 10 years of the National Health Service the gross cost of prescriptions for drugs and appliances dispensed under the Service rose from approximately £32 million per annum to approximately £63 million. Public concern over the mounting cost of the drug bill, and a widespread belief in both medical and lay circles that the Service was being abused, led to the appointment in 1957 of a committee charged with investigating costs. Its final report issued in 1959 (the Hinchliffe Report) showed that the increase in cost since 1951 had not been disproportionate to the increase in cost of other branches of the National Health Service (Ministry of Health, 1959). In both 1951-52 and 1957-58 the pharmaceutical services accounted for some 10·5 per cent. of the total cost of the N.H.S. The total number of prescriptions dispensed showed, indeed, a tendency to fall in more recent years; and, since the numbers on G.P. lists had increased over the period, the average frequency of prescriptions per person had also fallen. Consequently, the increase in overall costs could be attributed to a rise in the average cost of a prescription. This, in its turn, was due partly to an increase in the quantity of a drug prescribed on a single occasion, partly to the use of more expensive drugs, and partly to an increasing use of proprietary as compared with B.P. preparations.

In making its report, the Committee felt constrained to note that its inquiries, like those of the Guillebaud Committee earlier, had been hampered by shortage of information. Moreover, the complaint was not merely of the shortage of routine statistical data; it was also of the absence of information of a sociological and medical nature which could help in the interpretation of such data.

The Committee drew considerably on the analysis made by Martin (1957) of prescribing habits in 1951. Martin compared available information on such matters as size of doctors' lists, group practices, the demographic characteristics of towns, including mortality rates, age groupings, and social class distribution, and the general prosperity of areas as measured by the value of total retail sales per head with prescription costs and frequencies. He concluded that the different prescription *frequencies* of different regions were a response to differences in climatic conditions, morbidity rates, and "attitudes and expectations as to the appropriate behaviour of doctor and patient when illness occurred". Average *cost* per prescription, on the other hand, was highest in the most prosperous areas in all regions and lowest among the least prosperous. The only other factor which the Hinchliffe Committee found to be systematically linked with apparently excessive frequency of prescribing was the age of the general practitioner. Visits by the Regional Medical Officers of the Ministry of Health to doctors with apparently excessive prescribing habits revealed that they more frequently belonged to the younger age groups than did the general run of prescribing practitioners.

Since the "Survey of Sickness" conducted by the Social Survey for the Ministry of Health came to an end in 1952, information about the characteristics of the recipients of prescribed medicines has been almost totally lacking.* The Ministry of Labour's household budget inquiry in 1953-54 showed that

* A special inquiry was undertaken in 1952 in conjunction with the survey to discover who took prescribed medicines. (See Gray and Cartwright, 1954.)

the average weekly household expenditure on medicines and drugs prescribed under the N.H.S. was 1.4*d.* (Ministry of Labour and National Service, 1957). Since patients in that year directly contributed only 14 per cent. of the total cost of the national drug bill, the total cost of the prescribed medicines obtained by the average household would have amounted to 10*d.* per week. This latter sum also represented the average weekly expenditure on medicines and drugs obtained by households without prescription. Unfortunately, however, the Ministry's published data does not allow us to say how expenditure on prescriptions varied with differences in family composition, social class, income, or region, although it does show how *total* expenditure on medicines and drugs obtained with or without prescription varied with differences in these characteristics.

The most important findings of the Ministry of Labour inquiry were that expenditure per head on all medicines and surgical goods tended to rise with increasing family income; that, holding family income constant, expenditure per head tended to decrease with every additional person in the household; that manual workers spent less per head than professional or managerial employees or self-employed persons with comparable levels of family income; that, at similar levels of household income, expenditure per head in London and Southern England tended to be greater than in other parts of the country.

From both the sociological and the medical standpoint, information concerning medicines obtained without a doctor's prescription may be as significant as knowledge concerning the distribution of prescribed medicines. There are certain questions concerning medication as a whole, which, if they could be answered, would throw a good deal of light on health service usage. For example, are those who indulge in self-medication those who also obtain medicines on prescription, or is self-medication a substitute used by those who for one reason or another do not wish to visit their G.P.? Or again, for what type of symptomatic conditions is self-medication relatively important compared with prescribed medication? Do those with a tendency to self-medication have any distinguishing social or economic characteristics? Is the volume of self-medication related at all to differences in doctors' prescribing habits? How far and amongst what kind of people has the habit spread of taking preparations designed to promote health rather than relieve painful or unpleasant symptoms?

Answers to questions such as these cannot be given without inquiry among actual and potential

consumers of medicine. An analysis of general practice or hospital records would throw light on some characteristics of those who obtain prescribed medicines and the kind of conditions for which they are prescribed, but not on self-medication and actual consumers.

Some information on medication practices was obtained from a sample of the inhabitants of a post-war housing estate during 1954-55. This paper examines the data in an attempt to answer, for this local field, some of the general questions raised. The general validity of the conclusions needs to be tested by inquiries in other areas.

DATA

The data were obtained in the course of an inquiry undertaken by the Public Health Department of the London School of Hygiene and Tropical Medicine. The area of the study was a post-war housing estate built by the London County Council in South-West Hertfordshire. Its inhabitants, who numbered some 17,000 in 1954, were mainly young married couples with children. Only 13 per cent. were over the age of 45 compared with 35 per cent. of the population of England and Wales. About two out of every three of the male tenants were in occupations which could be classified by the Registrar General as belonging to Social Class III, that is, in skilled manual, routine clerical, and shop assistant jobs. Less than 10 per cent. of the households had a tenant in a non-manual occupation.*

Our sample of informants was obtained by drawing a random sample of three-sixteenths of the dwellings on the estate. We tried to obtain information about the health of all the individuals in these dwellings and about their use of health services. Our informants were the adults,† whom we interviewed twice at an interval of 4 weeks. In addition, if there were children in the family, two further visits, with a similar 4-week interval between them, were made to mothers in order to obtain information of the same kind about school and pre-school children.

At the first interview (concerning adult or child) we obtained information about the individual's health at that point in time. At the second interview we concentrated upon obtaining information concerning the events which had occurred since the first

* More detailed information concerning the estate and the methods used in the inquiry are available in articles by Brotherston, Chave, and others (1956), Martin, Brotherston, and Chave (1957), and Cartwright (1959).

† Adults were defined as those aged 15 or over who had left school.

interview 4 weeks previously. We asked them about new illnesses, about consultations which they may have had with G.P.s, with hospital or other health service personnel and with lay people such as chemists, about any days of incapacity through illness, and about medicines taken with or without a prescription during the period.

The question asked about medicines at this second interview was as follows: "During this period have you taken or used any of these sorts of medicines or pills at all: laxatives; health salts; indigestion remedies; throat or cough medicines, sweets, or syrups; aspirin or other pain relieving powders; sedatives or sleeping tablets; antiseptics, gargles, or mouth washes; skin ointments, eye lotions or ointments; embrocation or ointment to rub in; inhalants or things to sniff up your nose; corn pads or anything for the feet; tonics or syrups; vitamin tablets or medicinal foods; do you wear any surgical clothing, appliances, or footwear; is there any other medicine, pills, or ointments you have used, either things the doctor prescribed or things you got yourself?"

If there was a positive reply to any part of this set of questions the respondent was asked for details of the medicine. He was then asked what it was taken for and whether it had been prescribed by a doctor or not. No attempt was made to assess the quantity or the cost of the different types of medicine consumed by individuals. When we refer in this paper to the number of medicines taken we mean the number of different types of medicines listed in our question. Some people took two or more medicines of the same kind; for example, two kinds of cough mixture. In our analysis, however, we have only considered the number of different types of medicine consumed.

We were not able to obtain information concerning all the individuals in the sample of dwellings. Some were not interviewed at all, and the response was inevitably somewhat lower at the second interview than at the first. (It was at the second interview that information was obtained on medicines.) We were able, however, to obtain information about 1,399 adults and 1,056 children, representing 77 and 87 per cent. respectively of the individuals in the sample dwellings. In addition to information obtained in this way, we obtained data on the number of G.P. consultations during 1953 of the 86 per cent. of our sample who were registered during that year with doctors practising on the estate (Brotherston, Chave, and others, 1956).

The first part of our analysis is concerned with the extent of doctor-prescribed and self-prescribed

medication as a whole, and with some of the social and health characteristics of those who consumed medicines with or without prescriptions. The second part deals with the types of medicine taken and the conditions to which they were related. In this paper when we use the terms "prescription" or "prescribed medicine" we refer to medicines prescribed by a General Practitioner or hospital. Medicines other than those prescribed by a G.P. or hospital are called either "non-prescribed" or "self-prescribed" medicines and the process of taking them is referred to as "self-medication" or "self-prescribing".

(1) EXTENT OF MEDICATION

About a quarter of the individuals in our sample had taken medicine on a doctor's prescription during the 4 weeks between the two interviews. The proportion of individuals who had taken or used some medicine which they had obtained without a doctor's prescription was very much greater. It amounted to about two out of every three individuals.

The percentage of males and females at various ages who took any type of medicine during a 4-week period and the percentage of the same groups who took prescribed medicines are illustrated in Fig. 1 (opposite).

Among children, the proportion of boys taking prescribed or non-prescribed medicines did not differ significantly from the proportion of girls. 70 per cent. of the children under 10 years old had been given medicines of some sort, and 21 per cent. of them had taken medicine on a doctor's prescription. Medication was somewhat less frequent among the boys and girls of 10-14 than amongst any other age group. None the less, over 60 per cent. of both sexes took medicines of one sort or another. In the late teens, consumption, particularly of prescribed medicines, declined to a lower level for boys, but rose for girls. Among women aged 20-25 the rise continued, rather over 80 per cent. having taken medicines during the 4-week period, a proportion which varied little in subsequent age groups, although there was a slight tendency for the proportion who took *prescribed* medicines to increase with advancing age. The sex difference in the proportion taking medicines which began to emerge during the teen ages was maintained and indeed increased during early adult life. Only after age 45 did the gap between the proportion of men and women taking medicines, both with and without prescriptions, begin to narrow.

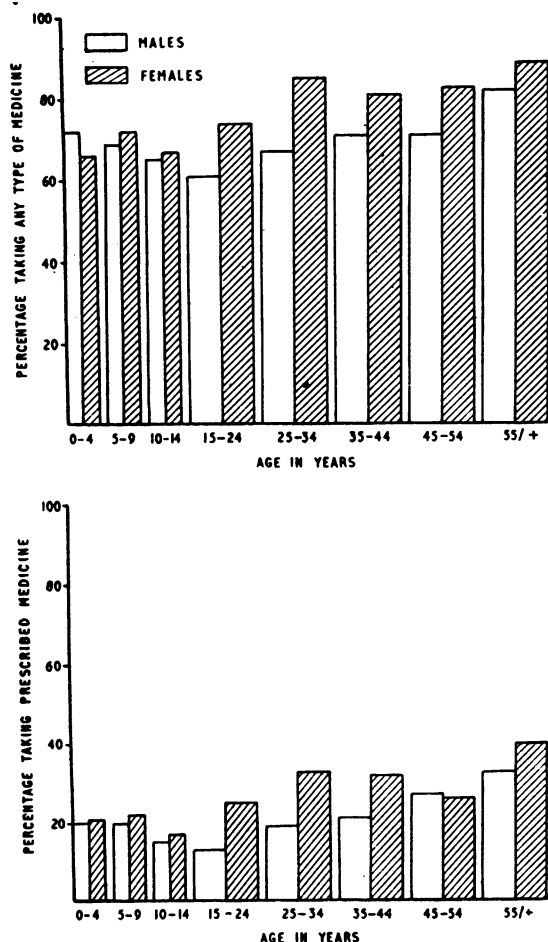


FIG. 1.—Variation with age and sex in the percentage taking any type of medicines and in the percentage taking prescribed medicines.

Those age and sex groups with a high consumption of prescribed medicines were also those with high average rates of general practitioner consultation

and *vice versa*; at the same time, variations with consumption of medicines of both types ran parallel to variations in the number of illnesses reported by the individuals concerned as being present at some-time between the two interviews. The proportion of these illnesses for which some medicine was taken was 41 per cent., and this proportion did not vary significantly with age or sex.

RELATIONSHIP OF SELF-MEDICATION TO DOCTOR CONSULTATIONS.—It could be supposed that given illness, pain, or discomfort, self-medication is primarily an alternative to consulting a doctor. If this were so, at a given level of reported illness, persons with a higher level of self-medication would have a lower average rate of G.P. consultations and vice versa. In practice, however, there was no such division. The relationships are illustrated in Table I, which compares the average annual G.P. consultation rates of those taking different numbers of types of self-prescribed medicines, further sub-divided into those reporting different numbers of present or recurring illnesses at the first interview. Our data indicated that adults who took one or more types of self-prescribed medicines during the 4-week period had rather higher average annual G.P. consultation rates than those with a similar number of illnesses who took no self-prescribed medicines. For children the pattern was similar but less consistent, giving no indication that self-medication and G.P. consultations were alternative rather than supplementary ways of responding to illness.

The relationship between illness and the consumption of medicines is further elucidated by the figures in Table II (overleaf). Non-prescribed medicines were consumed by about three out of ten of the adults and four out of ten of the children who claimed that they had had no illness or symptom

TABLE I
THE RELATIONSHIP BETWEEN NON-PREScribed MEDICATION, DOCTOR CONSULTATION, AND ILL-HEALTH
Average yearly G.P. consultation rate

No. of Non-prescribed Medicines consumed in 4 Weeks*	Adults				Children			
	No. of Self-reported Illnesses				No. of Illnesses reported for Child by Mother			
	0	1	2	3 or More	0	1	2	3 or More
None	1.3 (63)	2.7 (88)	3.2 (58)	4.7 (125)	3.0 (123)	2.7 (93)	4.2 (51)	4.1 (35)
One	1.8 (59)	2.8 (68)	4.1 (93)	5.3 (169)	2.4 (79)	3.8 (88)	4.0 (62)	4.5 (54)
Two or More .. .	1.8 (59)	3.1 (37)	3.7 (53)	5.2 (248)	2.8 (46)	2.9 (63)	4.8 (50)	5.5 (47)

* Types not necessarily actual numbers of medicaments.
Figures in brackets indicate the numbers on which the averages are based.

during a 4-week period. It would seem that the habit of prophylactic "dosing" is widespread, especially where children are concerned.

TABLE II
RELATIONSHIP BETWEEN NUMBER OF ILLNESSES REPORTED DURING A MONTH AND THE CONSUMPTION OF MEDICINES WITH AND WITHOUT A PRESCRIPTION

Persons	No. of Illnesses during Month	No Prescribed Medicines		Some Prescribed Medicines	
		Percentage taking some Self-prescribed Medicines	No. of Individuals (= 100 per cent.)	Percentage taking some Self-prescribed Medicines	No. of Individuals (= 100 per cent.)
Adults	0	29	181	—	—
	1	53	235	43	44
	2	72	207	66	95
	3	80	158	73	69
	4 or more	88	223	89	185
Children	0	39	278	—	—
	1	65	268	59	70
	2	75	187	67	60
	3	80	120	84	74
	4 or More				

The theory that a person who consulted his doctor and was given a prescription for one item would also ask for and obtain prescriptions for other items that he might otherwise have bought without a prescription is not substantiated by the data in Table II. Among people reporting a similar number of illnesses in a particular period, self-medication was only slightly less common for those consuming some medicine on a prescription than it was for those taking no prescribed medicines. Nearly nine out of ten adults reporting four or more illnesses were consuming some non-prescribed medicines whether or not they were also taking prescribed medicines.

SOME SOCIAL CHARACTERISTICS OF THOSE TAKING ANY TYPE OF NON-PRESCRIBED MEDICINE

(a) *Children.*—Many of the distinguishing characteristics of families and individuals which may have some association with a tendency to give children medicines without a doctor's prescription are themselves related. For example, there is a relationship between family size and mother's age, between size of family and father's occupation and social class grading, between type and length of formal schooling and social class. Unfortunately, the numbers in our sample were not sufficient to allow us to sort out the individual relationship of each of these characteristics to medication. The associations which medication was found to have with single social characteristics, therefore, may be indirectly rather than directly established. Nevertheless, their elucidation is of value in providing some indication of the likely range of social differences between those who give

or do not give non-prescribed medicines to their children.

Although the differences were not startling, children in larger families tended to be given fewer medicines without prescriptions than did children in families with one or two children. Table III shows the relationship between size of family and medication for children aged 5 to 9, by way of illustration. Among younger children the differences were a little less marked, and among the 10–14 age group a little more marked. The differences were not found, however, where medication on a doctor's prescription was concerned. Here there was no significant variation with size of family.

TABLE III
SIZE OF FAMILY AND AMOUNT OF MEDICATION CHILDREN AGED 5–9

Size of Family		1	2	3	4+
Percentage given Medicines	Prescribed	83 17	79 21	78 22	80 20
	Non-Prescribed	27 30 17 26	36 30 24 10	34 43 12 11	37 38 19 6
No. in Sample (= 100 per cent.)		30	131	150	128

Irrespective of size of family, there was also a slight tendency for first-born children to be given more medicines than later-born children. This tendency was noticeable for both prescribed and non-prescribed medicines, and is consistent with the suggestion that the first-born remains the object of more maternal anxiety during school years as well as in the first few years of life than do later-born children. Table IV shows the differences in the medicines given to first and later-born children of 5 to 9 years old.

Father's occupation and mother's education were themselves closely related. It was not, therefore, surprising to find that both these factors were associated with the non-prescribed medication of pre-school children (Tables V and VI). Children under 5 years old, whose fathers were professional or clerical workers, were given non-prescribed medicines more frequently than children whose fathers were manual workers. At the same time pre-school children whose mothers had attended grammar, technical, or private schools were given medicines more often than children whose mothers had ended their scholastic career in elementary or secondary modern schools. The differences were not great, however, and they tended to lessen as the age of the child increased. Indeed, among the 10 to 14-year age group, the association between medication and

TABLE IV
POSITION IN FAMILY AND AMOUNT OF MEDICATION. CHILDREN AGED 5-9 ONLY

Size of Family			One	Two children in family		Three children in family			Four or More children in family		
				Older	Younger	Oldest	Middle	Youngest	Oldest	Middle	Youngest
Percentage given Medicines	Prescribed	0	83	76	81	60	89	81	68	84	79
		1 or More	17	24	19	40	11	19	32	16	21
	Non-prescribed	0	27	33	38	25	32	41	32	42	26
		1	30	31	30	45	45	40	32	35	50
	2	17	21	26	15	10	11	20	19	15	
	3+	26	15	6	15	13	8	10	4	9	
Numbers in sample (= 100 per cent.)			30	58	73	40	47	63	19	75	34

TABLE V
CHILDREN'S MEDICATION AND MOTHER'S EDUCATION

Child's Age (yrs)		Under 5			5-9		10 or More	
		Modern or Elementary	Other	Modern or Elementary	Other	Modern or Elementary	Other	
Percentage given Medicines	Prescribed	22	12	22	16	18	15	
	Non-prescribed	58	72	63	72	57	67	
Nos. in Sample (= 100 per cent.)		196	50	286	99	219	55	

TABLE VI
CHILDREN'S MEDICATION AND SOCIAL CLASS OF FATHER'S OCCUPATION

Children's Age (yrs)		Under 5			5-9			10-14		
		Non Manual (1)	Skilled Manual (2)	Semi and Unskilled (3)	Non Manual (1)	Skilled Manual (2)	Semi and Unskilled (3)	Non Manual (1)	Skilled Manual (2)	Semi and Unskilled (3)
Percentage given Medicines	Prescribed	23	20	15	22	21	13	22	14	19
	Non-prescribed	66	62	54	59	66	62	51	60	62
Nos. in Sample (= 100 per cent.)		35	175	39	58	255	63	51	158	52

- (1) Corresponds to the Register General's Social Classes I, II, and III (c)
- (2) Corresponds to the Register General's Social Classes III other than (c)
- (3) Corresponds to the Register General's Social Classes IV and V.

father's occupation disappeared and that between mother's education and medication, although still significant statistically (5 per cent. level), was very small.

There is also some indication that, for children aged 5 years or more, those whose mothers worked full-time were given prescribed medicines less often

than children whose mothers worked part-time or not at all (Table VII). This is consistent with our previous finding (Cartwright and Jefferys, 1958), that the former group of children consulted their general practitioner less frequently than the latter group.

TABLE VII
CHILDREN'S MEDICATION AND MOTHER'S EMPLOYMENT

Child's Age (yrs)		Under 5		5-9			10 or More		
		Full or Part-time	None	Full-time	Part-time	None	Full-time	Part-time	None
Percentage given Medicines	Prescribed	24	19	10	22	21	12	15	20
	Non-prescribed	59	62	52	62	68	48	66	59
Nos. in Sample (= 100 per cent.)		29	219	40	105	238	52	91	128

One finding which was not related to those surrounding father's occupation, mother's work, or size of family was that children whose mothers stated that they themselves suffered from "nerves" were given several types of medicine more often than children whose mothers did not report nerves. This finding (Table VIII) applied, however, only to children in age groups under 10 years; it did not apply to secondary school children. Moreover, there was no distinction at any age in the proportions of children with or without "nervous" mothers who were given prescribed medicines.

It is also not surprising that the children with mothers who expressed some anxiety about their family's health were more frequently given medicines than those whose mothers did not worry about their family's health (Table IX). There was not, however, a consistent pattern of difference between the

children of those who worried much and those who worried little. Children in households possessing thermometers were also more frequently takers of medicine without prescriptions than were children in households not possessing thermometers. And, finally, mothers who took medicines themselves gave more to their children than did the mothers who did not take medicines (Table X).

Other factors which it was considered might show some relationship to giving children non-prescribed medicines were investigated without definite result. Among such factors were the age of the mother and the size of her own family of origin.

Our main conclusion where children were concerned, therefore, was that there were two general types of factor involved. On the one hand, there seemed to be some genuine differences between fairly distinct social groups in this community. The

TABLE VIII
CHILDREN'S MEDICATION AND MOTHER'S "NERVES"

Child's Age (yrs)			Under 5		5-9		10 or More	
Mother's "Nerves"			With	Without	With	Without	With	Without
Percentage given Medicines	Prescribed	0 1 or More	81 19	80 20	78 22	81 19	80 20	84 16
	Non-prescribed	0 1 2 or More	33 33 34	41 35 24	32 30 38	36 38 25	36 43 21	42 37 21
Nos. in Sample (= 100 per cent.)			67	185	117	277	100	187

TABLE IX
CHILDREN'S MEDICATION AND MOTHER'S WORRY ABOUT FAMILY HEALTH

Child's Age (yrs)			Under 5			5-9			10 or More		
Mother's Worry about Health			Much	Little	Not Worried	Much	Little	Not Worried	Much	Little	Not Worried
Percentage given Medicines	Prescribed	0 1 or More	76 24	79 21	84 16	73 27	78 22	84 16	79 21	85 15	87 13
	Non-prescribed	0 1 2 or More	24 37 39	24 33 38	47 33 20	30 35 35	23 50 27	43 33 24	36 42 22	34 40 26	47 34 19
Nos. in Sample (= 100 per cent.)			70	71	152	130	94	212	113	73	128

TABLE X
RELATIONSHIP BETWEEN CONSUMPTION OF NON-PRESCRIBED MEDICINES BY CHILDREN AND THEIR MOTHERS (Percentages)

Child's Age (yrs)	Under 5				5-9				10 or More			
	Number of Non-prescribed Medicines Consumed by Mother											
Number of Non-prescribed Medicines Consumed by Child	0	1	2	3+	0	1	2	3+	0	1	2	3+
None	47	49	25	20	45	39	33	23	47	41	41	30
One	32	31	35	39	38	35	33	37	31	45	36	36
Two	13	16	32	26	13	15	23	23	15	11	16	15
Three or More	8	4	8	15	4	11	11	17	7	3	7	19
No. in Sample (= 100 per cent.)	60	99	60	39	96	145	84	71	71	109	56	47

children of black-coated workers, whose mothers more frequently had an education beyond the minimum provided at secondary modern or elementary schools and whose families were, on average, smaller than those of manual workers, were more likely to be given medicines than were the children of less well-educated mothers and of manual workers. On the other hand, it was also possible to distinguish children by the mother's attitude towards health problems. The "nervous" mother, worried about her own health and that of her family, was more likely to include a thermometer in the household equipment and to give medicines to her children. These more personal attributes and the less personal distinctions of social grouping may, of course, be related. Indeed, it is likely that ideas and customs of different social groups concerning family size, care of children's health, and a host of attitudes to other aspects of family life and social behaviour are inextricably interwoven.

(b) *Adults*.—Our attempts to find any distinguishing characteristics of the adult men and women who took self-prescribed medicines as compared with those who did not were singularly unsuccessful.

Taking the male tenants of the dwellings in our sample, we looked at such differences in their social background as the region of the country in which they were brought up, their father's occupational class, and their own educational achievement. In no instance, however, were such differences significantly related to differences in self-medication. Where women were concerned, we chose to examine the experience of the wives of tenants. Here, too, we failed to discover any distinguishing features of their social background which could be related to self-medication habits.

(2) MEDICINES TAKEN AND THE CONDITIONS FOR WHICH THEY WERE TAKEN

Hitherto the discussion has concerned the characteristics which distinguish those who took or did not take medicines of any kind during a 4-week period. In this section the actual types of medicine consumed and the conditions for which they were taken are examined.

The proportions of adults and children taking different types of medicine during a 4-week period are shown in Table XI.

Four out of ten adults had taken some form of aspirin or pain-relieving powder without a prescription, and the corresponding proportion for children

TABLE XI
PERCENTAGE OF ADULTS AND CHILDREN TAKING DIFFERENT TYPES OF MEDICINES DURING A 4-WEEK PERIOD

Type of Medicine	Adults %		Children %	
	Prescribed	Non-prescribed	Prescribed	Non-prescribed
Aspirin or other pain relieving powders	3	39	1	22
Laxatives	1	16	—	26
Health salts	—	13	—	5
Throat or cough medicines, sweets or syrups	3	9	5	10
Skin ointments	3	6	2	6
Indigestion remedies	2	7	—	1
Embrocation or ointment to rub in	3	5	1	5
Inhalants or things to sniff up your nose	3	5	3	3
Vitamin tablets or medicinal foods	2	6	1	8
Antiseptics, gargles, mouth washes	—	7	—	4
Surgical clothing, appliances or foot wear	5	1	1	—
Tonics or syrups	2	2	1	7
Eye lotions or eye ointments	1	3	1	2
Sedatives and sleeping tablets	3	1	—	—
Corn pads or anything for feet	—	3	—	—
Other medicine, pills, ointment	11	4	8	4
Number of Individuals (= 100 per cent.)	1,399		1,056	

was 22 per cent. A quarter of the children had been given laxatives during this time, but apparently none of this medication was prescribed. Other medicines which were fairly frequently given to children without a prescription were throat and cough medicines or sweets. Adults took laxatives rather less frequently than the children but they took more health salts and indigestion remedies.

People sometimes failed to classify their prescribed medicines, so that the proportion of particular types of medicines that was prescribed is likely to be underestimated from these figures. Among the preparations which were classified and said to have been given on a prescription, the types most frequently mentioned were throat or cough medicines for children and surgical appliances and footwear for adults. Both the groups of medicines, aspirins and laxatives, which were taken by comparatively large proportions of the sample appeared to be taken almost exclusively on the initiative of the individual, the doctors prescribing only a small proportion of these medicaments. In contrast they prescribed more than three-quarters of the medicines which the people interviewed described as sedatives or sleeping tablets, and 84 per cent. of the surgical clothing, appliances, or footwear worn by the adults.

TABLE XII
CONDITIONS FOR WHICH DIFFERENT TYPES OF MEDICINES WERE TAKEN BY ADULTS

Disease	Percentage of Cases of Each Disease for which Some Medicine was taken	Percentage of All Medicines Taken for Each Condition which were Prescribed	No. of Adults reporting Conditions as Present during period	Type of Medicine most Frequently Taken
Tuberculosis	33	46	46	Vitamin tablets
Asthma	75	60	20	Inhalants, throat tablets, others
Obesity	38	*	29	Others
Anaemia	57	52	28	Vitamin tablets, aspirins, others
Psychoneurosis and other mental disorders	48	*	25	Aspirins
Nerves	28	36	151	Aspirins, tonics, sedatives
Worry, depression	16	*	31	—
Eye strain	21	24	111	Eye lotions, aspirins
Eye diseases	31	41	68	Eye lotions, aspirins
Deafness	9	*	47	Surgical appliances
Ear diseases	30	*	27	Others
Heart symptoms	12	*	41	—
Heart troubles	50	77	30	Others
Varicose veins	14	64	168	Surgical appliances
Haemorrhoids	31	14	67	Laxatives
Colds	53	13	259	Aspirins, throat tablets, inhalants
Catarrh	28	33	148	Throat tablets, inhalants, aspirins
Cough	29	12	82	Throat tablets
Tonsillitis, sore throats	71	35	48	Throat tablets, mouth washes, aspirins, inhalants
Bronchitis	61	30	66	Throat tablets, aspirins, embrocations, inhalants
Respiratory symptoms	18	*	22	Embrocations
Other diseases of respiratory system	67	41	42	Aspirins, throat tablets, others
Diseases of teeth	31	21	178	Aspirins, mouth washes
Dysentery, diarrhoea	33	31	40	Indigestion remedies, others, aspirins
Constipation	80	11	132	Laxatives, health salts
Indigestion	70	10	106	Indigestion remedies
Stomach pains and disorders	26	48	42	Others, indigestion remedies
Stomach ulcers	70	*	20	indigestion remedies, others, laxatives
Menopausal symptoms	46	48	41	Aspirins, sedatives
Disorders of menstruation	45	16	87	Aspirins
Other women's complaints	33	*	24	Aspirins
Boils, cellulitis	54	50	74	Skin ointments, others, vitamins
Dermatitis, eczema, pruritis	61	34	80	Skin ointments
Corns	52	6	68	Corn pads
Arthritis	41	55	29	Embrocations, aspirins
Rheumatism	39	34	188	Embrocations, aspirins, health salts, others
Painful and swollen joints	5	—	21	—
Bunions, flat foot, foot troubles	16	*	47	Corns pads, surgical appliances
Synovitis, slipped disk	29	87	38	Surgical appliances
Headaches, migraine	81	9	282	Aspirins, health salts, indigestion remedies, others
Dizziness, tiredness	17	50	120	Tonics, vitamin tablets
Sleeplessness	34	44	50	Sedatives, aspirins
Breathlessness	7	*	55	—
Backache	19	*	63	Embrocations, aspirins
Accidents	37	29	144	Embrocations, skin ointments, aspirins, others
Disabilities	15	*	39	Surgical appliances
Vague aches and pains	22	*	36	Embrocations
Others	48	44	217	
All Illnesses	42	30	3,777	

* Numbers insufficient

The conditions for which medicines were taken and the proportion of sufferers who took medicines are shown for adults in Table XII (opposite) and for children in Table XIII.

These Tables also give the proportion of medicines, taken for any given condition, which was prescribed. The figures relate to conditions or illnesses said to have been present in the interval between our two interviews.

The proportion of adult sufferers from a particular condition who took some kind of medicine for it was relatively high (70 per cent. or more) for headaches, constipation, sore throats, indigestion, and ulcers—all conditions for which some relief from symptoms can be obtained by fairly specific measures. In contrast, less than one in five of those adults with conditions such as breathlessness, dizziness, backache, and varicose veins were receiving any pharmaceutical treatment for these conditions. Surprisingly low, in view of widespread advertizing, was the proportion taking remedies for coughs or catarrh. Nearly twice the proportion, however, took remedies for colds, and the difference may arise from the fact that a high proportion of those with coughs and catarrh attributed these

conditions to smoking. Presumably, therefore, in contrast to colds, coughs were mainly regarded as concomitants of smoking which could not be ameliorated by taking pharmaceutical products.

Among adults, the proportion of medicines taken for each condition which had been prescribed was less than 15 per cent. for headaches (9 per cent.), constipation (11 per cent.), indigestion (10 per cent.), colds (13 per cent.), cough (12 per cent.), and piles (14 per cent.). Such figures do not suggest that many people are prepared to spend time in the doctor's waiting room in order to obtain for a shilling items which they could prescribe and purchase for themselves. Indeed, the relatively small proportion of all medicines which were prescribed for conditions such as asthma, arthritis, rheumatism, stomach ulcers, and anaemia suggests a fairly widespread use of advertised patent remedies, and possibly a disquieting failure to seek medical advice and pharmaceutical treatment under the National Health Service.

The type of medicine most frequently taken for the different conditions is shown in the final column of Table XII. Aspirins and other pain-relieving powders were certainly regarded as the most catholic of

TABLE XIII
CONDITIONS FOR WHICH DIFFERENT TYPES OF MEDICINES WERE TAKEN BY CHILDREN

Disease	Percentage of Cases of Each Condition for which Some Medicine was Taken	Percentage of All Medicines taken for Each Condition which were Prescribed	No. of Conditions reported as Present during Period
Nerves, Mental disorders	6	*	121
Squint	9	*	44
Eyestrain	30	*	20
Ear troubles	50	59	34
Colds	60	17	240
Catarrh	42	27	71
Cough	67	19	27
Sore throats	78	35	49
Bronchitis	73	40	40
Pneumonia, Influenza	74	61	31
Diseases of teeth	25	16	135
Diarrhoea, vomiting	40	*	30
Constipation	94	6	31
Stomach upsets	31	*	36
Kidney trouble, etc.	14	*	21
Skin troubles	51	39	109
Foot troubles	12	*	26
Headaches	69	6	49
Undue tiredness, loss of weight	19	*	27
Loss of appetite	6	*	53
Accidents	40	18	133
Disabilities; congenital malformations	—	*	26
Others	42	51	209
All Diseases	41	31	1,562

* Numbers insufficient

remedies. They were taken for arthritis and anaemia, bronchitis and backache, menstrual disorders and menopausal symptoms, nerves and neuritis, influenza and insomnia, colds and catarrh, and, of course, for headaches and rheumatism.

Compared with adults, there was less medication of children suffering from headaches and nerves, both of which are conditions most commonly treated with aspirins. There was, however, a great similarity between adults and children in the size of the prescribed proportion of remedies taken for any given condition.

Taking an overall view of the consumption of medicines, although much self-prescribing, particularly of aspirins and laxatives, went on amongst the population of this housing estate, there were even larger numbers of persons suffering from one or other morbid condition who neither prescribed for themselves, nor had the doctor prescribe for them. Medicines were taken for only four-tenths of the illnesses reported for both adults and children in a 4-week period.

Our further analysis, therefore, was concerned with discovering whether there were any differences in the social or health characteristics of those who were consumers of aspirins and laxatives and those who were not.

CONSUMERS OF ASPIRINS AND LAXATIVES

The practice of taking aspirins or other pain-relieving powders was most widespread among adults in their thirties, particularly amongst women. It was also more common among women than among men at all ages from 10 years upwards. No fewer than 53 per cent. of the women aged 25-34 had taken aspirins within the 4-week period covered by our two interviews. Where laxatives were concerned, however, the age pattern was reversed. Relatively larger numbers of the very young and of the elderly than of the young adults took laxatives, and, at all ages, more women than men were consumers. The proportions of each of the age groups into which our sample was divided who took aspirins and laxatives are shown in Fig. 2.

Among children, those in larger families had less often been given aspirins than had those in small families. Laxatives, on the other hand, seemed to be given with about the same frequency in large and small families. These findings are shown in Table XIV. The proportions within the 5-9 and 10-14 age groups are consistent with the recent findings in Buckinghamshire of Reid (1956), who reported that

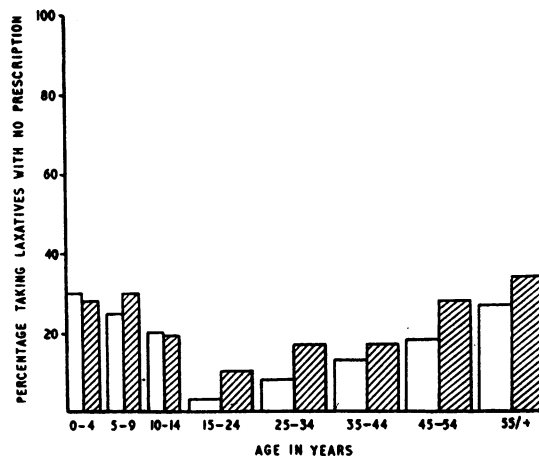
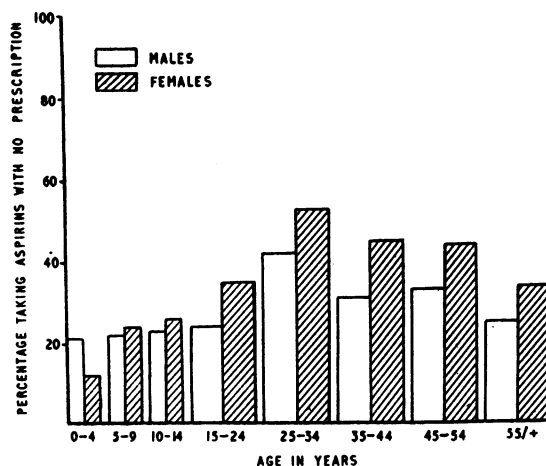


Fig. 2.—Variation with age and sex in the percentage taking aspirins with no prescription and in the percentage taking laxatives with no prescription.

TABLE XIV
CONSUMPTION OF LAXATIVES AND ASPIRINS BY CHILDREN, BY SIZE OF FAMILY

Size of Family	Age of Child (yrs)	Percentage taking Laxatives	Percentage taking Aspirins	No. of Children (= 100 per cent.)
One	Under 5	35	22	49
	5-9	30	53	30
	10 or More	*	*	15
Two	Under 5	29	17	83
	5-9	21	21	131
	10 or More	16	23	94
Three	Under 5	23	19	88
	5-9	32	23	150
	10 or More	19	26	104
Four or More	Under 5	33	11	80
	5-9	29	18	128
	10 or More	21	22	105

* Number insufficient.

12.6 per cent. of 5-year-olds and 12.9 per cent. of 15-year-olds were taking laxatives regularly once or more a week.

When the father's social class was considered, it was found that the children of skilled manual workers were most frequently given laxatives, and that this form of medication was least common among the children of non-manual workers (Table XV). This latter group of children, however, was more likely, when they were under 10 years old, to be given aspirins than children whose fathers were manual workers.

TABLE XV
CONSUMPTION OF LAXATIVES AND ASPIRINS BY CHILDREN, BY SOCIAL CLASS OF FATHER'S OCCUPATION

Social Class of Father's occupation	Age of Child (yrs)	Percentage taking Laxatives	Percentage taking Aspirins	No. of Children (=100 per cent.)
I, II, IIIc Non-Manual	Under 5	17	37	35
	5-9	10	31	58
	10 or More	6	20	52
III Other Skilled Manual	Under 5	32	14	175
	5-9	32	24	255
	10 or More	20	22	158
IV, V Semi-Skilled and Unskilled Manual	Under 5	15	5	39
	5-9	21	19	63
	10 or More	17	27	52

Younger mothers on the estate were no more nor no less inclined to give their children laxatives than were older mothers with children of the same age; but further evidence from other areas is needed before this finding could be interpreted as meaning that there is no sign of a general tendency to dose children less.

Bringing together the information on self-reported illnesses or symptoms and that concerning the taking of laxatives, it is apparent that most of the laxatives were given to children for prophylactic purposes and not in order to cure actual constipation or upsets of the digestive system.

At our first interview with the mothers, only thirty children were alleged by mothers to be subject to recurrent constipation or to be suffering from it at the time. At the second interview, an additional seventeen children had had a bout of constipation in the previous 4 weeks. Of the combined total of 47 children with constipation, however, only 28 had been given a laxative. At the same time 271 children had been given laxatives during the 4-weeks preceding our second interview. In other words, only about 10 per cent. of all those who were given laxatives, took them for remedial purposes. Over 90 per cent. of the children were given them, we can

presume, either because they were considered necessary to prevent constipation or because they were endowed in popular opinion with some health-preserving function.

Among adults, 132 (56 per cent.) of the 238 individuals who took laxatives had suffered from constipation during the 4 weeks preceding our second interview. In other words, just over half of those who took laxatives did so, at least on occasion, for therapeutic purposes and just under half for preventive reasons. It would be interesting to know whether those adults who were constipated (about one in every ten of the adult population) had been more frequently subjected to prophylactic "dosing" in childhood than those adults who were neither constipated nor taking laxatives.

SUMMARY

The available recent information on the consumption both of medicines prescribed under the National Health Service and of those bought without prescription is reviewed. The results of an inquiry, undertaken in 1954-55, in which a sample of the population of a post-war housing estate was asked about the kind of medicines consumed in a 4-week period as well as about illnesses and G.P. consultations, are described.

About a quarter of the sample had taken prescribed medicines in a 4-week period, and about two out of every three had taken non-prescribed medicines. Consumption was higher among women than among men at all ages from 10 years onwards; but the sex differences were greatest between adults aged 25 to 45 years.

Self-medication was not, on the whole, an alternative to G.P. consultation. Among those reporting similar numbers of illnesses, those who took two or more self-prescribed medicines had higher G.P. consultation rates than did those who took none or only one self-prescribed medicine. The majority of those who took medicines prescribed by the G.P. supplemented them with self-prescribed medicines.

Children in smaller families, and particularly the first born, were given more medicines than children in large families or later-born children. Mothers who had an education beyond the minimum provided in elementary and secondary modern schools and wives of black-coated workers gave their children more medicine, both self- and doctor-prescribed, than did the remaining wives and mothers. Mothers who themselves had "nerves",

were anxious about family health, and took medicines themselves, were more likely to give their children medicines than those without these personal characteristics.

Laxatives and aspirins were taken more frequently than any other type of pharmaceutical product. They were almost always self-prescribed. Aspirins were taken for a wide variety of symptomatic conditions. Women, especially those in their thirties and forties, were the biggest consumers of aspirins. They also took laxatives more frequently than men; but the very young and the very old were more often involved than those in the middle years of life.

Among children, those in small families were more often given aspirins; but laxatives were given with about equal frequency in different sized families.

Over 90 per cent. of the children who were given laxatives, took them as a general or specific prophylaxis and not to cure constipation. Among adults, however, 56 per cent. of those taking laxatives said they had suffered from constipation during the 4-week period.

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REFERENCES

- Brotherston, J. H. F., Chave, S. P. W., and others (1956). *Brit. J. prev. soc. Med.*, 10, 200.
- Cartwright, A. (1959). *Milbank mem. Fd Quart.*, 37, 33.
- and Jefferys, M. (1958). *Brit. J. prev. soc. Med.*, 12, 159.
- Gray, P. G. and Cartwright, A. (1954). *Appl. Stat.*, 3, 19.
- Ministry of Health (1959). "Final Report of the Committee on Cost of Prescribing". H.M.S.O., London.
- Ministry of Labour and National Service (1957). "Report of an Enquiry into Household Expenditure in 1953-54". H.M.S.O., London.
- Martin, F. M., Brotherston, J. H. F., and Chave, S. P. W. (1957). *Brit. J. prev. soc. Med.*, 11, 196.
- Martin, J. P. (1957). "Social Aspects of Prescribing". Heinemann, London.
- Reid, J. J. A. (1956). *Brit. med. J.*, 2, 25.