Smoking Habits After Myocardial Infarction

G. G. LLOYD, MPhil, MRCP, MRCPsych,
Psychiatrist, Department of Psychological Medicine, Royal Infirmary, Edinburgh

R. H. CAWLEY, PhD, FRCP, FRCPsych,
Professor of Psychological Medicine, King's College Hospital Medical School and Institute of Psychiatry, London

The association between smoking and ischaemic heart disease is well established and the weight of the evidence suggests the relationship to be a causal one[1]. Those who stop smoking have a lower mortality from ischaemic heart disease than those who persist with the habit[2], while in patients who have already suffered a myocardial infarction, stopping smoking is associated with a lower recurrence rate, lower death rate from cardiovascular causes, and a lower overall mortality[3]. Advice against smoking forms an accepted part of management after myocardial infarction but it is not known why some patients give up while others continue to smoke.

This article reports on the smoking behaviour of a group of men after their first myocardial infarction and investigates associations between this, personality factors, and psychiatric morbidity. It forms part of a larger study of outcome after a heart attack, the preliminary results of which have been presented elsewhere[4]. Previous reports on the personalities of smokers have shown them to score more highly on extraversion (E) scales than non-smokers[5-9]. An association with neuroticism (N), is less consistent; groups of smokers have been reported to have equal N scores[5,6,8], low N scores[7] and high N scores[9] compared with non-smokers. Likewise there are contradictory reports on the postulated association between psychological symptoms and smoking[10,11].

Patients and Methods

Of 105 men under the age of 65 consecutively admitted to a coronary care unit after a first acute myocardial infarction, 100 survived one week and formed the cohort for this study. During the admission each patient who smoked was strongly and unambiguously advised to stop by the medical staff. It was emphasised that smoking was a causal factor in their illness and that stopping smoking would reduce the risk of a recurrence. This advice was supplemented by written information contained in a specially prepared leaflet. For the study, patients were interviewed on the seventh day after admission; social and medical data were recorded in a standardised way and their mental state was examined using the Standardised Psychiatric Interview[12]. This has been found to be a reliable instrument when used by trained psychiatrists and to be acceptable to subjects who do not regard themselves as psychiatrically ill. In accordance with the authors' recommendations a score for overall psychiatric morbidity was derived by doubling the sum of the manifest abnormality scores and adding this to the sum of the symptom scores. A history of smoking habits prior to the infarct was also taken. Patients who smoked at least one cigarette daily or who had stopped smoking less than six months previously were defined as smokers; all others were regarded as non-smokers. In fact, no patient had stopped smoking during the six months before the attack.

Patients were interviewed again four months later. Their mental state was examined, inquiry was made about smoking since the infarct, and the Eysenck Personality Questionnaire (EPQ)[13] was completed to provide measures of the extraversion, neuroticism and psychoticism personality dimensions. A final interview was conducted 12 months after the initial illness.

Results

Of the 100 patients, 75 per cent smoked up to the time of their illness; the majority (58 per cent) had been heavy smokers, consuming at least 20 cigarettes daily. During the following twelve months 11 patients died; 87 of the others were known to be alive, and 2 could not be traced. When the initial smoking habits of the survivors and dead patients are compared (Table 1) it can be seen that all

Table 1. Smoking habits at the time of myocardial infarct of survivors and non-survivors at 12 months.

		Died	Survived
Cigarettes/day	0	1	24
	<10	0	4
	10-19	0	10
	20+	10	46
Pipe/cigars		0	3

but one of the deaths occurred among those who had been heavy smokers.

The effect of smoking on mortality is seen most clearly when the death rate in the heavy smokers is compared with that in all other groups combined (Fisher's Exact Test, $p = 0.03$).

Smoking Habits at Follow-up

Between the 1 week and 4 month assessments 8 patients died; 86 (93 per cent) of the surviving patients were interviewed. Of these, 64 had been smokers at the time of their illness; 31 (48 per cent) had stopped and some of the others had reduced their consumption (Table 2).

Table 2. Change in smoking habits between time of myocardial infarction and four months.

Cigarettes/day	0	<10	10-19	20+	Pipe/cigars
No. of cases	22	4	8	49	3
Stopped	—	1	2	26	2
Reduced to <10	—	—	1	1	—
Reduced to 10-19	—	—	—	14	—
Changed to pipe	—	1	2	2	—
No change	22	2	3	6	1

Most changes in smoking habits were maintained up to the twelve months assessment when 4 patients resumed smoking. Meanwhile 4 others had stopped between four and twelve months.

Associations of Smoking with Personality and Mental State

The data in Table 3 show smokers to be significantly more extravert than non-smokers. They tend to have higher neuroticism scores and higher psychiatric morbidity, though these tendencies are not statistically significant. Psychoticism scores do not differ.

Table 3. Personality and initial psychiatric morbidity scores of smokers and non-smokers.

	Non-smokers (n = 22)	Smokers (n = 64)		
	Mean ± SEM	Mean ± SEM	't'	Significance
Extraversion	8.95 ± 1.07	12.18 ± 0.64	2.60	$0.01 < p < 0.025$
Neuroticism	7.00 ± 1.22	9.68 ± 0.73	1.88	$0.05 < p < 0.10$
Psychoticism	2.45 ± 0.44	2.61 ± 0.26	0.31	NS
Psych. Morbidity	7.73 ± 1.71	10.02 ± 1.02	1.15	NS

When those who continued to smoke are compared with those who gave up, no significant differences on any of the personality dimensions are found. There is, however, a significant difference between the two groups in the change in mental status between 1 week and 4 months. Whereas those who gave up show a fall in mean psychiatric morbidity from 10.6 to 7.0, the persistent smokers actually show a small increase, 9.5 to 10.8. This difference is statistically significant ($t = 2.52$; $p < 0.025$). Although in clinical terms these changes are small, they suggest that persistent smoking may be associated with persistent psychiatric symptoms. When the changes in smoking are compared in the two groups initially identified as being psychiatrically ill (Table 4), it is seen that those patients who were psychiatrically ill prior to the infarction (Group 1) were much less likely to give up smoking than those whose psychiatric symptoms were precipitated by the infarct (Group 2).

Table 4. Change in smoking habits of patients with initial psychiatric morbidity.

Group	Gave up	Persisted
Psych. Morbidity prior to myocardial infarction	1	9
Psych. Morbidity precipitated by myocardial infarction	11	4

(Fisher's Exact Test, $p = 0.005$)

The proportions of smokers in the two groups at the time of the infarct were very similar, 14 of 16 and 17 of 19 respectively.

Discussion

Like most other studies of smoking habits, our findings have to be qualified because of their dependence on patients' self-reports. A recent study employing measurements of urinary nicotine and cotinine to verify smoking histories estimated that 46-53 per cent of previous smokers had actually stopped, compared with the 63 per cent who claimed they had done so[14]. In practice, few doctors have access to such laboratory markers and advice on smoking is determined by what the patient reports in response to probing questions.

Bearing these reservations in mind, our study confirms the high prevalence of smoking in men who suffer a myocardial infarction and indicates that heavy smoking is associated with increased mortality. Indeed, a history of heavy smoking at the time of the infarct was the only predictor of death in those who had survived for one week after admission. Neither the physical severity of the attack[15] nor mental state significantly predicted mortality during the subsequent 12 months.

Nearly half our patients had stopped smoking by the 4-month assessment, this rate being similar to those from other studies[16-18]; it is intermediate between the 63 per cent after intensive advice and the 27.5 per cent after routine advice reported by Burt *et al.*[19]. A major illness like myocardial infarction, whose association with smoking is well recognised, provides an excellent opportunity for firm, authoritative advice against smoking. This is clearly followed by a considerable reduction in the numbers of smokers, most of those who give up doing so immediately after admission. The advice given and repeated in hospital is therefore crucial.

As reported in other studies, smokers had higher extraversion scores than non-smokers, but personality dimensions did not distinguish those who gave up from those who persisted. Change in psychiatric interview scores did differentiate these two groups. Failure to give up smoking was associated with persistent psychiatric symptoms and those patients who were psychiatrically ill at the time of the infarct were particularly unlikely to give up smoking. It was this group who were also likely to have psychiatric symptoms persisting into the convalescent period[20]. Our findings indicate that when the smoking habit cannot be broken, despite strong medical advice, emotional symptoms may be responsible and attention to the patient's mental health is called for.

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Johnson's underlinings and indications of passages in which that trouble has not been taken. In fact one contemporary biographer complains bitterly of the way Johnson treated books he had borrowed, saying 'If ever they came back to those that lent them, they were so defaced as to be scarcely worth owning'.

As the years passed, making nonsense of Johnson's original estimate of the time the Dictionary would take to compile, he was constantly pressed for copy. When the last instalment was finally delivered to Andrew Millar, who had taken principal charge of its publication, he is reported to have remarked 'Thank God, I have done with him'. Johnson's retort, when told, was 'I am glad he thanks God for anything'. Published in the spring of 1755, the Dictionary made no sensational impact; reviews were cautious, but in June of that year Johnson was able to write: 'The Dictionary goes well'.

Although he had to admit that there were some words he could not explain because he did not understand them, Johnson had included scientific, technical and philosophical terms in his Dictionary; 'the words which our authors have introduced by their knowledge of foreign languages, or ignorance of their own, by vanity or wantonness, by compliance with fashion, or lust of innovation, I have registered as they occurred, though commonly only to censure them, and warn others against the folly of naturalizing useless foreigners to the injury of the natives.' For some of the etymologies he acknowledges his debt to Stephen Skinner, an Honorary Fellow, whose *Etymologicon linguae anglicanae* (1671) is in the library.

There cannot be many dictionaries in which the beliefs, prejudices, and character of the lexicographer are so apparent. He regards astrology, 'the practice of foretelling things by knowledge of the stars', as 'an art now generally exploded as without reason'. He thought to doctor 'to physick; to cure; to treat with medicines. A low word'. The Commissioners of Excise were affronted by his definition of excise as 'a hateful tax levied upon commodities, and adjudged not by the common judges of property, but wretches hired by those to whom excise is paid'. It was only on the advice of the Attorney General that they decided not to prosecute, lest they make themselves ridiculous.

Nevertheless Johnson's Dictionary surpassed earlier dictionaries, not in bulk (its 40,000 words were in fact less than those in Bailey's Dictionary), but in precision of definition and in literary illustrations (there were 118,000 quotations). Five editions of the *Dictionary* were published in his life-time, and one by Robert Gordon Latham (1866-67), a Fellow of the College who forsook medicine for literature. His edition appeared about the same time that John Cook received his valuable gift. Today one might use the word 'fascinating', rather than 'valuable'; but it should be remarked that although in 1900 a copy would have fetched barely £2 in the sale rooms, today the price paid would exceed £500.

L. M. PAYNE