

# Smoking, personality and reasons for smoking

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**SYNOPSIS** The relationships between smoking, reasons for smoking and personality were investigated in 98 cigarette smokers. Contrary to the usual findings, smoking did not relate to extraversion (E) but related instead to psychoticism (P). It is suggested that this relation is the true one, and previous findings have been due to a contaminated measure of E. Neuroticism (N) was related to the amount smoked, and particularly to a willingness to give reasons for smoking. There was no relation between the Reasons for Smoking Questionnaire, and attempts or success at giving up smoking. Smokers who rolled their own cigarettes were more introverted than others. No measures showed significant relations with the nicotine content of cigarettes.

## INTRODUCTION

The Royal College of Physicians' report entitled *Smoking or Health* (Royal College of Physicians, 1977) states:

Compared with non-smokers, adult smokers tend to be impulsive, arousal-seeking, danger-loving, risk-takers and to be more belligerent towards authority. They drink more tea and coffee and are more likely to use other drugs including alcohol. They are more prone to divorce, changes of job, and car accidents, and are less likely to wear seat-belts. . . . Many of these characteristics contribute to the personality trait of extraversion which has been found consistently to be associated with smoking.

The suggestion that smokers were more extraverted was introduced by Eysenck *et al.* (1960) and expanded by Eysenck (1965) who said:

extraverts have a kind of 'stimulus hunger' . . . Thus their preference for coffee and alcohol, for spicy foods, for pre-marital and extra-marital intercourse, their impulsive and risk-taking behaviour - all these are easily deduced from this general hypothesis. We may similarly deduce . . . that extraverts would be more likely to seek for the stimulation afforded by cigarette smoking [p. 99]; the relationship is a quantitative one, i.e. the greater the number of cigarettes smoked the greater is the degree of extraversion of the smokers concerned [p. 105].

Thus the relationship should hold *within* smokers as well as between smokers and non-smokers.

Eysenck (1965) also suggested that neuroticism was not truly related to smoking behaviour, although recent work has suggested that this may (Rae, 1975) or may not (Haines *et al.* 1980; Cherry & Kiernan, 1978) be correct.

The recent work of Eysenck & Eaves (1980) (published after the completion of the empirical work reported in this study) has re-iterated, in its introduction, the above points, emphasizing in particular that the relation between the degree of smoking and extraversion should apply *within* smokers (p. 97). However, the possibility is raised (for example, pp. 102, 108) that psychoticism is also related to cigarette smoking, although no distinction is made between a relation within smokers and between smokers and non-smokers.

Eysenck's almost unitary view of the nature of cigarette smoking has been contested over recent years, and there have been several attempts to devise multidimensional typologies of cigarette smokers' reasons for smoking (for example, Frith, 1971, who differentiated high and low anxiety situations). Probably the most successful is that of Russell *et al.* (1974) who, by means of factor analysis, have divided smokers' stated reasons for smoking into two major orthogonal dimensions, which can be broadly described as pharmacological and socio-psychological. It is implied that the former relates to a true dependence upon the pharmacological effects of nicotine, while the latter relates to non-pharmacological factors, such as the sensory

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qualities of cigarette smoke, or the social consequences of cigarette smoking. Each of the two orthogonal dimensions can be further subdivided into three or four oblique factors which are quite highly intercorrelated.

Given the Eysenckian theory of extraversion and smoking, and the Russell typology of reasons for smoking, we might well predict that the degree of extraversion of smokers should relate to their degree of pharmacological addiction (and, in particular, to the 'stimulation' dimension) and to their difficulty in giving up smoking. Similarly, we might predict that pharmacological smokers would tend to smoke cigarettes with a higher nicotine content and to consume more coffee and alcohol.

Smokers are notorious for concealing their actual consumption and their true reasons for smoking (Sillett *et al.* 1978; Kozlowski *et al.* 1980). We therefore also predicted that several variables in a study might relate to the 'lie detector' scale of personality questionnaires.

In the present paper we shall describe an investigation of these hypotheses.

## METHOD

One hundred members of Bedford College (81% undergraduates, 12% postgraduate, 7% staff; mean age = 22.3, s.d. = 3.8, range = 17-40) completed a set of questionnaires in May 1980. Thirty per cent of the subjects were obtained by

asking all smokers within particular classes to complete a questionnaire; the remaining 70% of subjects were obtained through an appeal for volunteers. No differences were found between these two groups, and they will not be considered further in this report. The first questionnaire assessed the smoking history of the subjects, and their consumption of tea, coffee, beer, wine and spirits. The second questionnaire consisted of the 34 questions of Russell *et al.*'s (1974) Reasons for Smoking Questionnaire. The third questionnaire consisted of the Eysenck Personality Questionnaire (EPQ). Only two subjects smoked a pipe or cigars, and they were excluded from the study. Thirty-nine males and fifty-nine female cigarette smokers were included in the analysis. Intercorrelations between variables were assessed by the Pearson and Spearman correlation coefficients. Since both coefficients gave essentially similar results, only the Pearson coefficients will be reported here.

## RESULTS

Table 1 summarizes the important characteristics of the subjects, males and females being considered separately. Cigarette smoking was assessed in terms of the reported number of cigarettes smoked per day (cigs/day), and the subjects were also asked which brand of cigarettes they usually smoked. Eight men and

Table 1. *Characteristics of subjects: the means, standard deviations and sample sizes, for male and female subjects separately, on the main dimensions of interest in the study*

	Males			Females			<i>t</i>
	<i>N</i>	Mean	s.d.	<i>N</i>	Mean	s.d.	
Age	39	23.33	4.75	59	21.58	2.91	2.26*
Cigs/day	39	16.69	10.18	59	14.35	8.81	1.20
Nic/cig (mg)	31	1.30	0.28	57	1.29	0.23	0.22
Nic/day (mg)	31	24.14	15.39	57	18.27	10.92	2.07*
<i>N</i> -giveup	39	1.61	2.38	59	2.23	2.85	-1.12
<i>T</i> -giveup (weeks)	22	8.23	10.49	37	7.83	10.91	0.13
<i>R</i> -giveup (weeks)	22	30.81	34.31	37	29.32	30.77	0.17
Alcohol (½ pints of beer equivalent)	39	15.69	13.62	59	10.47	11.64	2.03*
Tea & coffee (½ pint cups per day)	39	7.69	3.92	59	7.62	3.88	0.08
EPQ E	39	12.43	5.24	59	13.93	4.33	-1.53
EPQ N	39	12.64	6.42	59	12.49	5.92	0.12
EPQ P	39	6.87	3.63	59	4.47	2.86	3.64***
EPQ L	39	4.38	3.30	59	5.08	3.80	-0.94
RUSS 1	39	30.94	19.72	59	32.42	19.39	-0.36
RUSS 2	39	31.71	12.52	59	31.43	11.43	0.11

The value of *t* tests the significance of the difference between males and females: \*  $P < 0.05$ ; \*\*\*  $P < 0.001$ .

two women usually rolled their own cigarettes (the difference between the sexes is significant:  $\chi^2_1 = 7.51$ ,  $P < 0.01$ ), and these individuals were omitted from the appropriate parts of the analysis. Nicotine levels per cigarette (nic/cig) were derived from government nicotine and tar estimations, and the estimated nicotine consumption per day (nic/day) was calculated by multiplying nic/cig by cigs/day. Separate analyses were also carried out for tar/cig and tar/day, but these values correlated so highly with nic/cig and nic/day (0.911 and 0.986 respectively,  $N = 88$ ) that tar levels will not be considered further in this report. 13.8% of men and 18.8% of women smoked 'low tar' cigarettes, as defined by HM Government. Subjects were also asked how many times they had tried to give up smoking ( $N$ -giveup); those who had tried to stop ( $N = 59$ , 60.2% of total) were asked to estimate the longest time during the previous two years for which they had given up smoking ( $T$ -giveup) and the time since their most recent attempt to give up smoking ( $R$ -giveup). Subjects were also asked to say whether they considered themselves to be regular smokers, and the usual time for their first cigarette of the day, but these measures correlated so highly with cigs/day (0.584 and 0.567 respectively) that neither will be considered further.

Subjects were asked to estimate their daily tea and coffee consumption in quarter-pint cups per day, being told that a mug is usually half-a-pint. They were also asked to estimate their weekly alcohol consumption in terms of beer (half-pints), wine (glasses) and spirits (singles); total alcohol consumption was calculated on the basis that one glass of wine or a single measure of spirits is equivalent to a half-pint of beer.

Russell's Reasons for Smoking Questionnaire was analysed in terms of two main scores, one of which estimated pharmacological reasons for smoking ('RUSS 1', based on questions 1, 6, 7, 9, 10, 12, 16, 17, 19, 20, 23, 29, 31, 32 and 33) and the other of which estimated socio-psychological reasons for smoking ('RUSS 2', based on questions 2, 3, 4, 5, 8, 11, 13, 14, 15, 18, 21, 22, 24, 25, 26, 27, 28, 30 and 34); this partitioning of the questions was based on Fig. 2 of Russell *et al.* (1974). The responses for individual items were combined by giving scores of '1', '2', '3' and '4' respectively for answers of 'not at all', 'a little', 'quite a bit', and 'very

much so'. These scores were summed for RUSS 1 and RUSS 2 and the results were then standardized so that the maximum and minimum possible scores on each scale were 100 and 0 respectively. Scores on Russell's seven oblique factors were also estimated: stimulation (questions 7, 12, 16, 20, 23, 33); automatic smoking (questions 10, 19, 32); addictive smoking (questions 9, 17, 24, 31); indulgence (questions 4, 15, 21, 28); psychosocial smoking (questions 8, 11, 18, 22, 26, 34); sensorimotor smoking (questions 2, 3, 5, 13, 27); and sedative smoking (questions 6, 29).

The EPQ was analysed in terms of the four standard scales as described by Eysenck & Eysenck (1975). E is usually called extraversion, and N is usually called neuroticism, and both have been fairly well characterized and refer to standard psychological types. P has been called 'psychoticism' (or 'tough-mindedness') by Eysenck & Eysenck (1976), but may perhaps be better referred to as 'psychopathy'. L was originally conceived as a lie-detector scale, the intention being to assess whether individuals were merely trying to respond as the psychologist required, rather than as was truly the case; thus L may also be interpreted in terms of 'social acquiescence', measuring an individual's tendency to give answers which are socially desirable rather than strictly correct. The males had significantly higher N and P scores and lower L scores than the general population norms, while the females had higher E and P scores and lower L scores than the general population. Overall, E, N, P and L showed very low intercorrelations, the values being very similar to those reported elsewhere (Eysenck & Eysenck, 1976). Overall, the males and females showed significant differences in their P scores, their daily nicotine consumption, and their alcohol consumption.

Table 2 shows the pattern of intercorrelations between the measures of smoking behaviour, and of tea & coffee and alcohol consumption. The number of cigarettes smoked per day correlates with tea & coffee and alcohol consumption. However, tea & coffee shows no relationship with nic/day or nic/cig, by contrast to the correlation with cig/day; these results support the general finding that smokers show a tendency to consume a cigarette whenever they drink a cup of tea or coffee (Bennett *et al.* 1970).

Table 2. *The intercorrelations of measures of smoking with tea & coffee and alcohol consumption*

	Cig/ day	Nic/ cig	Nic/ day	N-giveup	T-giveup	R-giveup	Tea & coffee	Alcohol
Cig/day	1.0	0.063	0.920***	0.071	-0.041	0.301*	0.232*	0.362***
Nic/cig	—	1.0	0.378***	-0.053	0.221	0.228	-0.028	-0.055
Nic/day	—	—	1.0	0.018	0.027	0.366**	0.101	0.385***
N-giveup	—	—	—	1.0	0.000	-0.232†	0.054	0.060
T-giveup	—	—	—	—	1.0	0.119	-0.169	-0.088
R-giveup	—	—	—	—	—	1.0	0.134	0.113
Tea & coffee	—	—	—	—	—	—	1.0	0.071
Alcohol	—	—	—	—	—	—	—	1.0

Significance levels of differences of correlations from zero: †  $P < 0.1$ ; \*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

Table 3. *The correlations between measures of smoking, tea & coffee and alcohol consumption, and the four personality measures, E, N, P and L*

	EPQ E	EPQ N	EPQ P	EPQ L
Cigs/day	-0.007	0.176†	0.275**	-0.097
Nic/cig	-0.029 (-0.028)	0.051 (0.041)	-0.011 (-0.029)	0.006 (0.012)
Nic/day	-0.012	0.083	0.289**	-0.109
N-giveup	0.063 (0.061)	0.138 (0.128)	-0.001 (-0.021)	0.097 (0.104)
T-giveup	0.201 (0.203)	-0.093 (-0.087)	-0.280* (-0.287*)	0.228† (0.229†)
R-giveup	0.056 (0.061)	-0.125 (-0.192)	0.035 (-0.051)	-0.377** (-0.366**)
Tea & coffee	0.194† (0.201*)	0.114 (0.076)	0.125 (0.065)	-0.136 (-0.117)
Alcohol	0.255* (0.277**)	-0.027 (-0.099)	0.263** (0.182†)	-0.279** (-0.263**)

Correlations in parentheses represent the partial correlations after the removal of effects due to cigs/day. †  $P < 0.1$ ; \*  $P < 0.05$ ; \*\*  $P < 0.01$ .

The three measures of success at giving up smoking show little relation to one another. Presumably, the ability to give up smoking is not the same as maintaining abstinence from cigarettes. The three measures of giving up do not show the same pattern of correlations with the other variables. The number of attempts at giving up (*N-giveup*) and the longest time for which a person has given up (*T-giveup*) show no significant relationship with the other variables. By contrast, the reported time since the most recent attempt to give up (*R-giveup*) correlates with cigs/day and hence also with nic/day.

Table 3 summarizes the correlations between the personality measures and the measures of cigarette smoking, tea & coffee and alcohol consumption. Cigs/day, nic/cig and nic/day show no relation with E (extraversion). There is, however, a strong relation between P and cigs/day and nic/day; there is also a slight

correlation between N and cigs/day, although not between N and nic/cig and nic/day.

Tea & coffee consumption shows a correlation with E, but not with N, P or L. Alcohol consumption shows significant relations with E, P and L. The latter means that high L scorers tend to report lower alcohol consumption than low L scorers, showing the effect of social acquiescence upon response to this item.

The measures of attempts at giving up smoking relate to personality. There are no significant relationships with extraversion or neuroticism. The number of attempts at giving up shows no relation with personality. However, the longest time of giving up smoking (*T-giveup*) shows a significant negative correlation with psychoticism. Thus high P scorers smoke more cigarettes per day and tend to make less successful attempts at giving up. The relation is still present after the effect of cigs/day is

partialled out. Both the time of giving up and the recency of giving up show significant relations with the L-scale, suggesting that they might not be entirely reliable measures.

Table 4 summarizes the relations between the scores on Russell's Reasons for Smoking Questionnaire and the measures of smoking and of personality. RUSS 1 (a measure of a subject's willingness to give 'pharmacological' reasons for

smoking) correlates highly with cigs/day and nic/day (but not nic/cig). In view of these correlations, Table 4 also gives partial correlations between variables after removing the effects of cigs/day. Smoking for pharmacological reasons shows correlations with tea & coffee consumption, the recency of attempting to give up and neuroticism; but only the latter relation is significant after the removal of the effects of cigs/day. The giving of pharmacological reasons for smoking shows no relationship with psychoticism. RUSS 2 (a measure of a subject's willingness to give 'socio-psychological' reasons for smoking) shows no relation with measures of smoking, or attempts to give up. However, RUSS 2 (as with RUSS 1) shows a relation with neuroticism, suggesting that a large proportion of the attributable variance in the Russell questionnaire is related to a subject's willingness to give reasons for smoking, rather than being due to actual differences in behaviour. RUSS 2 also relates to psychoticism, subjects with high P scales giving more psychosocial reasons for smoking (but *not* more pharmacological reasons). RUSS 2 also shows a strong negative correlation with L, high L scorers being less willing to give psychosocial reasons for smoking (presumably due to perceived social pressures not to give such answers).

In view of the possibility that Russell *et al.*'s seven oblique factors might show a different relationship to personality than the two global variables, the correlations are summarized in Table 5. The correlation of pharmacological smoking with neuroticism is not shown by the automatic component. Extraversion still shows no relation to any of the reasons for smoking.

Table 4. *The correlations between the two Russell Reasons for Smoking dimensions, and measures of smoking behaviour, tea & coffee and alcohol consumption, and personality*

	RUSS 1 (pharmacological reasons)	RUSS 2 (socio-psychological reasons)
Cigs/day	0.680***	0.074
Nic/cig	0.138 (0.130)	0.158 (0.154)
Nic/day	0.645*** (0.067)	0.123 (0.139)
N-giveup	0.150 (0.139)	-0.058 (-0.063)
T-giveup	-0.018 (0.013)	-0.165 (-0.162)
R-giveup	0.319* (0.163)	0.199 (0.185)
Tea & coffee	0.201* (0.060)	0.002 (-0.015)
Alcohol	0.144 (-0.149)	0.138 (0.119)
EPQ E	-0.076 (-0.097)	-0.121 (-0.120)
EPQ N	0.381*** (0.362***)	0.247* (0.238*)
EPQ P	0.100 (-0.123)	0.195* (0.182†)
EPQ L	-0.132 (-0.090)	-0.412*** (-0.407***)

Correlations in parentheses represent the partial correlations after the removal of effects due to cigs/day. †  $P < 0.1$ ; \*  $P < 0.05$ ; \*\*\*  $P < 0.001$ .

Table 5. *The correlations between the seven oblique Russell factors, the four personality scores, and RUSS 1 and RUSS 2*

	EPQ E	EPQ N	EPQ P	EPQ L	RUSS 1 (pharmacological)	RUSS 2 (socio-psychological)
RUSS 1 (pharmacological)						
Stimulation	-0.076	0.381***	0.100	-0.132	1.0	0.242*
Automatic	-0.066	0.312**	0.127	-0.107	0.917***	0.178†
Addictive	0.042	0.072	0.039	-0.141	0.629***	0.092
Sedative	-0.158	0.319***	0.145	-0.127	0.823***	0.368***
RUSS 2 (socio-psychological)						
Indulgence	-0.032	0.560***	-0.081	-0.148	0.736***	0.271**
Psychosocial	-0.121	0.247*	0.195*	-0.412***	0.242*	1.0
Sensorimotor	-0.046	-0.032	-0.001	-0.121	-0.080	0.553***
	-0.132	0.338***	0.121	-0.328***	0.256*	0.764***
	-0.009	0.257*	0.188†	-0.325***	0.187†	0.665***

†  $P < 0.1$ ; \*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$ .

Table 6. *The correlations for which significant differences were found between males and females*

Correlation		<i>r</i> males	<i>r</i> females	Significance
T-giveup	With L	-0.207	0.422	*
R-giveup	With L	-0.675	-0.229	*
Nic/cig	With P	0.241	-0.237	*
Tea & coffee	With P	-0.054	0.287	†
Nic/cig	With cigs/day	0.386	-0.167	*
Nic/cig	With nic/day	0.596	0.194	*
N-giveup	With tea & coffee	-0.173	0.182	†
RUSS 1	With nic/cig	0.464	-0.061	*
RUSS 2	With nic/day	0.421	-0.107	*

†  $P < 0.1$ ; \*  $P < 0.05$ .

The relationship of socio-psychological smoking to neuroticism is shown by all the components except indulgence, and essentially similar results are found for the relationships with psychoticism and the lie scale. In summary, these correlations suggest that perhaps automatic smoking and indulgent smoking should not be included for all purposes in the pharmacological and socio-psychological scales respectively.

In view of the presence of significant sex differences in total nicotine consumption and alcohol consumption, a careful search was made for possible sex differences in the correlations between variables. All correlations reported were carried out separately for males and females, and the conventional test for differences in correlation was applied. Table 6 summarizes those correlations which were significantly different at the 0.1 level or better. It is possible that some of these differences are truly significant. However, the possibility of Type I errors must not be ignored, since a total of 91 pairs of correlations were compared, and of these 9 were significant at the 0.1 level, 7 at the 0.05 level, and none at the 0.01 level, these values being almost at chance expectations. Nevertheless, in view of the possible confounding effects of such sex differences, if true, upon epidemiological studies, they are reported here.

A small number of the subjects did not smoke ready-made cigarettes but instead rolled their own. These subjects did not differ at all from the other subjects, except that they were significantly more introverted ( $r = -0.258$ ,  $P = 0.01$ ); this result was valid for both males and females considered independently (males:  $r = -0.246$ ,  $P = 0.131$ ; females:  $r = -0.242$ ,  $P = 0.065$ ). There were no other significant correlations with rolling one's own cigarettes.

## DISCUSSION

From a theoretical point of view, the most important single result in the present study is the complete lack of a relationship between E (extraversion) and any measure of cigarette smoking. This result cannot readily be attributed to a relatively small sample size, since we did find a significant relation between P and smoking, and also between E and another aspect of smoking: namely, rolling one's own cigarettes. Similarly, we did find correlations between E and tea & coffee intake and alcohol consumption, as would have been predicted. We therefore wish to propose that there is, indeed, no true relation between E and smoking, and that the real relation is with P. This immediately raises the question as to why previous studies have found a relation between E and smoking. Most such studies (for example, Eysenck, 1965) have used the EPI (Eysenck Personality Inventory) to assess extraversion (Eysenck & Eysenck, 1964); we, however, have used the EPQ, which differs from the EPI in also producing a measure of P. We wish to suggest that the E scale of the EPI contains a component due to P, and hence previous studies have found relationships between smoking and E because of a spurious correlation of EPI E with EPQ P. We have been unable to find a single study in the literature in which the same individuals have been given the EPI and the EPQ; we would predict that such a study would find a correlation between EPI E and EPQ P. A close scrutiny of the questions in the EPI and EPQ reveals reasons for such a possible correlation. Question 2 of the EPQ, which scores on the P-scale, is identical, with the exception of a single minor word, to question 5 of the EPI (version A) where it is scored on the

E scale. Questions 53 and 33 of the EPQ, which score on the P scale, are very similar in meaning to questions 37 and 56 of the A form of the EPI and question 25 of the B form, where they are scored on the E scale. We would also suggest that a reading of the behavioural correlates of smoking, as given by the Royal College of Physicians (1977), makes more theoretical sense in terms of an association with P than with E.

The above interpretation is supported by the recent work of Eysenck & Eaves (1980), where they conclude:

The relationship between extraversion and smoking, so often assumed to be of paramount importance, does not emerge in our data. It seems likely that the addition of P to E and N as a major dimension of personality has led to the incorporation in P of some of the elements of E which previously mediated the correlation with smoking; if this were to prove a correct hypothesis, then most of what was said in the text about E would now apply to P [p. 314].

It must also be emphasized that Eysenck & Eaves (1980) report similar relationships with personality both between smokers and non-smokers (p. 286), and within smokers (p. 290), although important evidence is also reported which suggests that 'non-smokers are differentiated genetically from smokers along quite a distinct dimension from that which discriminates between the different degrees of cigarette consumption among smokers' (p. 235).

The Eysenckian concept of a single personality dimension related to 'stimulus hunger' (which is re-iterated in Eysenck & Eaves, 1980, p. 95) also seems difficult to sustain in the light of the present evidence; thus, tea & coffee consumption relates to E but not P, and alcohol relates to both E and P.

Eysenck has characterized the high P scorer as solitary, troublesome, cruel, lacking in feeling, lacking in empathy, hostile to others, sensation-seeking and liking odd and unusual things...immature, irresponsible, anti-authority, difficult to handle and independent...[They] are found in unusual abundance among psychotics...and among psychopaths and criminals.

Many of these characteristics have been referred to earlier. One may predict that smoking should be more common among schizophrenic populations (and casual observation suggests that this may well be the case). A more interesting prediction would be that smoking is a risk factor

for the subsequent development of psychosis. The association with P would also explain the excess of deaths due to suicide and poisoning (and perhaps alcoholism) among smokers, which Doll & Peto (1976) have suggested is 'presumably secondary to an association with psychological factors'.

From a practical point of view, the most important aspects of this study concern the Reasons for Smoking Questionnaire. This questionnaire on reasons for smoking clearly resolves into two components. It would seem, however, that a large proportion of its important correlates are not with *differential* reasons for smoking (socio-psychological v. pharmacological) but rather with a general willingness to give reasons for smoking at all (and hence correlations with neuroticism). The correlation of RUSS 1 with the amount smoked is not surprising, since one would predict that those who smoke little would rarely claim that they had a desperate need to do so. The correlations of RUSS 1 and RUSS 2 with neuroticism may help to explain some of the discrepancy between those studies which do and do not find associations between N and smoking (Eysenck & Eaves, 1980, p. 109).

The implicit hope behind studies of personality, and of factorial analyses of smokers' motivations, is that they might provide a means of predicting which smokers will respond to treatment to help them stop smoking, and hence will enable one to predict which treatments will be better for particular types of smokers. In the present study the Reasons for Smoking Questionnaire showed no correlation with reported attempts to give up smoking. The personality measures showed a small relation with success at giving up, high psychoticism subjects giving up for less time than low psychoticism subjects (a result which is consonant with the findings of Eysenck & Eaves, 1980, pp. 330, 331, 345). In general, high psychoticism subjects appear to have a poor response to psychotherapy and behaviour therapy (Eysenck & Eysenck, 1976), and to be relatively independent of others. These items would account for the difficulty in stopping such individuals from smoking, and from maintaining abstinence once it has occurred.

It might be felt that the present study is of little relevance to the practical problem of helping smokers to stop smoking since the subjects are younger than the average smoker who stops

smoking. Against this, it must be pointed out that 60% of our sample had attempted to stop smoking and that, on average, this attempt had been for eight weeks and took place 30 weeks ago, suggesting a high degree of involvement in the cessation of smoking. Furthermore, we may probably assume that such attempts were, in general, not motivated by disease or ill-health, thereby confounding personality correlations.

No relationship has been found between any of our measures and the nicotine or tar content of the cigarettes smoked. It does not seem therefore that 'low-tar' cigarettes are consumed by a particular personality type. Little more can be concluded from this result in view of the fact that the stated nicotine content and the actual nicotine intake are confounded by a variation in the degree of inhalation (Wald *et al.* 1981).

#### NOTE ADDED IN PROOF

The recent paper of Rocklin & Revelle (1981) clarifies the present work. They reported that the EPI extraversion scale contains measures of sociability and impulsivity, while the EPQ extraversion scale contains only a measure of sociability (and with the impulsivity component appearing in the EPQ psychoticism scale). Hence, if cigarette smoking correlates with impulsivity, it should correlate with E on the EPI and P on the EPQ, which would explain the present findings. We may also therefore explain the correlation of rolling one's own cigarettes, and of tea/coffee consumption with EPQ Extraversion as being probably related to sociability, and the correlation of alcohol consumption with both EPQ E and EPQ P as a function of both sociability and impulsivity.

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