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Psychosocial and health belief variables associated with frequent attendance in primary care

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ABSTRACT

Background. The reasons for high use of primary care, and in particular the role of psychosocial factors, remain unclear.

Methods. We identified and interviewed 236 frequent attenders and 420 normal users, matched by age and sex, of a public Health Centre in Granada, Spain. Users were questioned about mental health (GHQ-28), social support (Duke-UNC-11), family dysfunction (family APGAR) and health beliefs (health belief model, locus of health control and medical care expectations). We also measured a set of individual, social and illness variables.

Results. Multiple logistic regression analyses showed that mental health was the main factor associated with frequent attender status (odds ratio = 3·1; 2·4–3·9). The association was stronger than that between frequent attender status and perceived illness, and between the former and reported chronic illness. Family dysfunction and perceived susceptibility to and severity of disease were also significantly but more weakly associated with frequent attender status. Affective support was more strongly associated with FA status than was confidant support, but both associations disappeared when mental health and family function were controlled for.

Conclusions. Our findings document the association of psychosocial factors and primary health care use. We suggest that the effective management of mental health problems from a family-based approach may reduce primary health care high use.

INTRODUCTION

Rates of utilization of primary health care services are of interest to both clinicians and managers. For clinicians, utilization determines how the service is organized and its clinical efficiency (Marsh, 1991); for the latter, utilization is a fundamental element in the planning and management of material and human resources.

Although many studies have tried to clarify which factors are associated with the use of health services, we are still far from understanding why services are used (Campbell & Roland, 1996). The behavioural model (Andersen & Newman, 1973) is probably the most widely used theoretical and practical approach in utilization studies. However, research based on this model has not always yielded the expected results, with many studies failing to explain more than 20% of the variability (Wan, 1989). This discrete predictive power has been widely noted and criticized (Hulka & Wheat, 1985; Wolinsky, 1988).

Another aspect of utilization that has attracted interest is the fact most visits are made by a small group of patients – high users or frequent attenders (FA) – who consume most of the resources available through the family physician. In Canada, the United States, Finland and Spain, 12–15% of the patients account for 50% of the visits (Browne *et al*. 1982; Freeborn *et al*. 1990; Kekki & Laamen, 1989; Bellón *et al*. 1995). It has been estimated that 15% of all primary care patients consume 64% of the costs of health care (Von Korff *et al*. 1992). Efforts to reduce the utilization of health care resources,

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and hence bring down the cost of health care, might centre on this small group of patients. However, it should be noted that efforts to control costs would probably be more appropriately designed for FA with psychosocial problems than for other FA, such as patients with chronic renal failure.

From a practical standpoint, there is special interest in FA-associated factors that can be modified with the resources available in the health-care setting. Among such psychosocial factors are health beliefs, mental health problems, social support and family factors.

The health belief model (Janz & Becker, 1984) stands out among psychosocial models of health-related behaviours, and is currently one of the most frequently applied models. It has been used mainly to predict preventive utilization patterns, but also to predict clinical utilization. However, the model has been criticized because it is rarely used with appropriate criteria for validity and reliability (Harrison *et al*. 1992), and because general health beliefs cannot be considered predictive of specific beliefs regarding a given health problem (Berkanovic & Telesky, 1982).

The locus of health control model was developed to measure individual beliefs about the degree to which personal health is determined by one's behaviour (Wallston & Wallston, 1978). It postulates that individuals with a greater internal locus of control tend to use health services less, whereas persons who believe that health depends on medical care professionals, fate or other persons tend to have a more dependent attitude towards life in general, and tend to use health services more frequently. However, the locus of health control model has rarely been used to predict user behaviour (Bush & Iannotti, 1990).

The relationship between mental health problems and increased use of health care services has been widely documented, and such problems have been found to explain almost as much variability as the entire suite of illness variables (Barsky *et al*. 1986). Moreover, mental health disorders are more frequent among FA (Katon *et al*. 1990). However, in some studies the association between mental health problems and utilization disappeared once confounders for illness, enabling and predisposing factors were controlled for (Hibbard & Pope, 1986; Berkanovic & Hurwicz, 1989).

Persons with an extensive, strong and readily available social network tend to perform more self-care and seek medical attention less often, whereas the opposite is the case for persons without such a network (Counte & Glandon, 1991). One study found that functional social support can be an important predictor of primary care utilization (Broadhead *et al*. 1989); however, mental health was not measured, and this may have acted as a confounding factor for utilization (Oakley *et al*. 1994). Another study failed to find a close relationship between social support and utilization (Bowling *et al*. 1991). Family factors can also determine certain behavioural patterns, including the use of medical services. Utilization by different family members was found to correlate directly and closely, the correlation being even stronger in FA families (Schor *et al*. 1987). However, although one study suggested that family dysfunction was associated with greater use (Moreno, 1989), another raised doubts about such a link (Hilliard *et al*. 1986).

Although there is evidence that psychosocial factors can help explain the high use of primary care services, other factors have clouded the possible relation between the two. Therefore, more evidence is necessary to demonstrate a strong association between psychosocial factors and high use. Other studies have typically examined one or two psychosocial factors in isolation; here we examine the influence of several such factors simultaneously. The present study, however, is not intended to determine why patients consult their family doctors, neither does it attempt to provide a explanatory model of high use in primary care.

Objectives

The present study was designed to answer two questions: (1) Are psychosocial factors associated with high use of primary care services?; and (2) Among a selected set of psychosocial factors, which possess a most strong association with high use?

METHOD

Design

In this cross-sectional study the case group consisted of frequent attenders (FA) and the control group consisted of normal users (NU).

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Setting

The research was done at the Centro de Salud Zaidín-Sur in Granada, a city of 300000 inhabitants in south-eastern Spain. The health centre serves a population of approximately 24000 from a geographically defined area in the southern part of the city, and is attended by 10 family physicians (patients aged 10 years or more) and four primary care paediatricians. All physicians work as a team in the same building with the nursing staff, a social worker, administrative staff and support personnel.

The national health service in Spain provides free medical care to 100% of the population, and is financed through the general national budget. Patients do not pay directly for this service (for further information about the Spanish national health system see, Hart, 1990).

Population and sample

The eligible population consisted of all subjects aged 14 years or older who were seen at the Zaidín-Sur Health Centre between 1 August 1985 and 1 March 1991. Five of the 10 family physicians participated. From the patient lists of these five physicians were selected a simple random sample of 2018 individuals (the patient lists include those who consulted their doctor at least once between 1 August 1985 and 1 March 1991), for whom we recorded use during the period from 1 March 1991 to 29 February 1992 from the patients' records. High use (HU) was defined as a number of visits to the health centre greater than the mean plus one standard deviation for the age and sex group (Table 1). The FA group contained 285 subjects (14% of the sample). The 1733 users who did not meet this criterion were considered NU and formed the pool of potential control subjects.

Table 1. *Overall use (total visits/year) by men and women and by age groups. Cut-off points used to define the group of frequent attenders*

Age (years)	*N*	Mean	95% CI	(S.D.)	Cut-off point
Women					
14–24	179	2·53	2·14–2·92	(2·65)	5·18
25–34	306	3·07	2·70–3·45	(3·35)	6·42
35–44	210	4·60	4·03–5·17	(4·21)	8·81
45–54	145	6·91	5·96–7·86	(5·77)	12·68
55–64	189	8·69	7·72–9·66	(6·75)	15·44
⩾ 65	347	7·85	7·27–8·42	(5·45)	13·30
Total	1376	5·62	5·34–5·90	(5·37)	10·99
Men					
14–24	109	2·47	2·03–2·91	(2·31)	4·78
25–34	133	2·93	2·28–3·59	(3·80)	6·73
35–44	114	3·13	2·42–3·83	(3·79)	6·92
45–54	79	5·19	3·83–6·55	(6·05)	11·24
55–64	89	6·72	5·44–7·99	(6·06)	12·78
⩾ 65	118	6·67	5·73–7·62	(5·19)	11·86
Total	642	4·38	4·00–4·76	(4·89)	9·27

S.D., standard deviation; 95% CI, 95% confidence interval; cut-off point, mean + 1 S.D.

Dropouts and final sample

Of the 285 FA, 236 were interviewed. Of the 49 patients who were not interviewed (17·1%), 10·6% could not be contacted after three visits to their home address, 3·5% declined to take part in the interview (mainly because of time constraints), 1% were disabled (mental retardation, deafness, dementia), 1·7% had moved during the observation period and 0·1% had died.

Among the potential control subjects we chose a random sample of 511 NU; of these, 91 (17·8%) could not be interviewed (2·3% had moved out of town, 9·6% could not be located after three visits to their home address, 4·7% declined to take part in the interview (mainly because of time constraints), 0·8% were disabled and 0·4% had died). Therefore, the final NU sample consisted of 420 patients.

There were no significant differences in the distribution of sexes, age groups, or consultation rates between patients who were unavailable for interview and those who were interviewed.

The final sample comprised 656 individuals, 236 cases and 420 controls. According to the formulas given by Dobson & Gebski (1986), this sample had a predictive power of 86·35% to detect, with an alpha error of 5%, a difference of 10% in the proportion of HU or NU individuals for a given covariable.

Variables

All variables except utilization were recorded in the course of individual interviews with the patient in his or her home. The interviews were held between 1 January 1993 and 30 June 1993. Utilization was scored as, all visits to the family physicians at the health centre during the observation period, as determined from the subject's clinical record. We did not take into account visits to the health centre's or hospital

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Table 2. *Relationships between user status and independent variables*

Variables	Normal users ($N = 420$) N (%)	Frequent attenders ($N = 236$) N (%)	OR†	95% CI	P
Marital status (widowed or separated)	64 (15·2)	63 (26·7)	2·03	1·37–3·00	0·001
Education (Primary school or less)	151 (36·0)	126 (53·4)	2·04	1·47–2·82	< 0·001
Employment status (not employed outside the home or retired)	258 (61·4)	185 (78·4)	2·28	1·59–3·29	< 0·001
Socio-economic level (middle level or more and other; level I, II, III and VI)	83 (19·8)	52 (22·0)	0·87	0·59–1·29	0·049
Self-reported health (neither good nor bad, so-so, or poor)	209 (49·8)	175 (74·2)	2·90	2·04–4·10	< 0·001
Travelling time to health centre (more than 10 min)	73 (17·4)	47 (19·9)	1·18	0·79–1·78	0·420
Satisfaction with your doctor (never, almost never or sometimes)	99 (23·6)	61 (25·9)	1·13	0·78–1·63	0·515
Persons per household*	3·72 (3·57–3·88)	3·19 (2·97–3·42)	—	—	< 0·001
Number or chronic illness*	4·68 (1·33–5·03)	8·02 (7·45–8·58)	—	—	< 0·001
Functional Social Support Scale*‡	33·1 (32·2–33·9)	29·3 (28·0–30·7)	—	—	< 0·001
Confidant Support Subscale*	20·0 (19·3–20·6)	17·4 (16·4–18·4)	—	—	< 0·001
Affective Support Subscale*	13·1 (12·8–13·4)	11·9 (11·4–12·4)	—	—	< 0·001
GHQ-28 Mental Health Scale*§	5·4 (5·0–6·0)	11·9 (11·1–12·6)	—	—	< 0·001
Psychosomatic Subscale*	2·1 (1·9–2·3)	4·1 (3·8–4·5)	—	—	< 0·001
Anxiety Subscale*	2·0 (1·8–2·8)	4·2 (3·9–4·5)	—	—	< 0·001
Social Dysfunction Subscale*	0·9 (0·7–1·0)	2·0 (1·8–2·2)	—	—	< 0·001
Depression Subscale*	0·5 (0·4–0·6)	1·6 (1·3–1·8)	—	—	< 0·001
Family APGAR*‖	8·9 (8·7–9·1)	8·1 (7·8–8·4)	—	—	< 0·001
Affective expectations*	9·2 (9·1–9·3)	9·3 (9·2–9·5)	—	—	0·247
Susceptibility – Severity*	14·5 (14·1–14·9)	16·6 (16·1–17·1)	—	—	< 0·001
Perceived medical efficacy*	17·2 (16·9–17·4)	17·4 (17·1–17·7)	—	—	0·209
Chance Locus Health Control*	6·4 (6·2–6·6)	6·7 (6·4–7·0)	—	—	0·085
Internal Locus Health Control*	12·8 (12·6–12·9)	12·5 (12·2–12·8)	—	—	0·144
Perceived medical scepticism*	5·9 (5·7–6·1)	6·0 (5·7–6·4)	—	—	0·425
Technical expectations*	5·1 (4·9–5·3)	4·9 (4·6–5·1)	—	—	0·165
Perceived barriers*	4·72 (4·5–4·9)	4·6 (4·4–4·9)	—	—	0·477
Resistance – Mildness*	9·3 (9·0–9·5)	9·3 (8·9–9·6)	—	—	0·957

† OR, unadjusted odds ratio; CI, confidence interval; P from chi-squared test except for quantitative variables (*) with P, from T test; (*) mean and 95% confidence interval.

‡ For low Functional Social Support (< 15th percentile), the unadjusted odds ratio was 2·68 (95% CI, 1·73–4·15).

§ For positive GHQ-28 (⩾ 7), the unadjusted odds ratio was 13·03 (95% CI, 8·81–19·74).

‖ For dysfunctional Family APGAR (⩽ 6), the unadjusted odds ratio was 3·30 (95% CI, 2·14–5·07).

emergency room, telephone queries, prenatal care, or house calls.

In accordance with earlier studies confounding variables were: age, sex, marital status, educational level and employment status according to the classification of the Spanish 'Instituto Nacional de Estadística' (National Institute of Statistic, 1991); socio-economic level according to an adaptation of the 'Clasificación Nacional de Ocupaciones' to social class (Domingo & Marcos 1989); number of persons per household; self-reported health; and number and type of reported chronic illness (list of 33 chronic health problems) according to the pertinent items in the 'Encuesta Nacional de Salud' (National Health Survey, 1989).

The psychosocial variables measured were mental health (Goldberg's GHQ-28 questionnaire) (Goldberg & Hiller, 1979), family function according to the family APGAR index (Smilkstein *et al.* 1982) and social support according to the Duke-UNC-11 scale (Broadhead *et al.* 1988).

The health belief scale was developed from several sources. Four items were taken from each of the four dimensions in the health belief model (Janz & Becker, 1984). Four items from each of the three dimensions were taken from the locus of health control scale (Wallston & Wallston, 1978). Four items were taken from the 'knowledge and attitudes toward minor health problems' dimension. In addition, we used a factor with two dimensions: technical expectations (three items) and affective expectations

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Table 3. *Relationships between user status and chronic illness*

Variables	Normal users ($N = 420$) N (%)	Frequent attenders ($N = 236$) N (%)	Odds ratio*	95% CI	P
Cholesterol	54 (12·9)	57 (24·2)	2·15	1·42–3·25	0·0002
Back pain or arthritis	224 (53·5)	184 (78·0)	3·08	2·14–4·43	< 0·0001
Chronic mouth or gum problems	109 (26·0)	81 (34·3)	1·49	1·05–2·10	0·0245
Piles or anal fistule	90 (21·5)	67 (28·4)	1·45	1·00–2·09	0·0467
Varicose veins	109 (26·0)	94 (39·8)	1·88	1·34–2·64	0·0002
Uric acid or gout	21 (5·0)	21 (8·9)	1·85	0·99–3·47	0·0513
Chronic foot problems	93 (23·2)	82 (34·7)	1·87	1·31–2·66	0·0005
Hypertension	82 (19·6)	95 (40·3)	2·77	1·94–3·95	< 0·0001
Cancer	5 (1·2)	9 (3·8)	3·28	1·09–9·91	0·0260
Nephrolithiasis	25 (6·0)	27 (11·4)	2·03	1·15–3·60	0·0128
Epilepsy	8 (1·9)	5 (2·1)	1·11	0·35–3·44	0·8537
Anxiety, depression or mental health problems	122 (29·1)	134 (56·8)	3·20	2·29–4·46	< 0·0001
Allergy	55 (13·1)	41 (17·4)	1·39	0·89–2·16	0·1401
Diabetes	45 (10·7)	53 (22·5)	2·41	1·56–3·72	0·0001
Anaemia	22 (5·3)	31 (13·1)	2·73	1·54–4·83	0·0004
Heart problems	38 (9·1)	65 (27·5)	3·81	2·46–5·91	< 0·0001
Menstrual or menopause problems	35 (8·4)	33 (14·0)	1·78	1·08–2·95	0·0233
Headache or migraine	159 (37·9)	141 (59·7)	2·43	1·75–3·36	< 0·0001
Chronic urinary infection or prostate problems	55 (13·1)	79 (33·5)	3·33	2·25–4·93	< 0·0001
Hernia	26 (6·2)	28 (11·9)	2·03	1·16–3·56	0·0115
Stomach problems	82 (19·6)	77 (32·6)	1·99	1·38–2·86	0·0002
Chronic skin problems	33 (7·9)	25 (10·6)	1·38	0·80–2·39	0·2399
Constipation	103 (24·6)	91 (38·6)	1·92	1·36–2·71	0·0002
Chronic bronchitis or asthma	49 (11·7)	66 (28·0)	2·93	1·94–4·42	< 0·0001
Cerebral thrombosis or paralysis	2 (0·5)	13 (5·5)	12·1	2·72–54·3	0·0001
Thyroid problems	10 (2·4)	8 (3·4)	1·43	0·56–3·69	0·4509
Blindness	34 (8·1)	34 (14·4)	1·91	1·15–3·16	0·0113
'Poor circulation'†	91 (21·7)	100 (42·4)	2·65	1·87–3·75	< 0·0001
Chronic renal failure or dialysis	5 (1·2)	12 (5·1)	4·44	1·54–12·7	0·0026
Chronic ear infection or deafness	38 (9·1)	50 (21·2)	2·69	1·71–4·26	< 0·0001
Chronic sinusitis	24 (5·7)	23 (9·7)	1·78	0·98–3·22	0·0558
Liver or gall bladder problems	52 (12·4)	51 (21·6)	1·94	1·27–2·97	0·0019
Other problems	23 (5·5)	21 (8·9)	1·68	0·91–3·11	0·0943

* OR, unadjusted odds ratio; CI, confidence interval; P, chi-squared test.
† Can include more or less specific health problems such as peripheral arterial insufficiency, venous insufficiency, paresthesia of the extremities, etc.

(three items) (Dupuy & Karsenty, 1974). In all our health belief scale consisted of 38 items (23 affirmative statements and 15 negative statements); responses for all items were recorded on a 5-point Likert scale (see Appendix).

Statistical analysis

Quantitative variables were analysed to detect skewness, and were transformed if necessary according to Tukey's criteria (1977). The square root of $(x+1)$ was used to transform the overall score on the GHQ-28 scale, number of persons in the household, and number of reported chronic illnesses. The x^2 transformation was used for the score in the Duke-UNC-11 scale and its affective and confidant social support subscales. Log $(x+1)$ transformation was applied to the C subscale (social dysfunction) of the GHQ-28 scale and to utilization variables when these were considered quantitative. The D subscale (depression) of the GHQ-28 scale was subjected to $-1/x$ transformation. The x^2 transformation was also applied to perception of internal locus of health control and affective or technical expectations.

Bivariate analysis included the chi-squared test, Fisher's exact test, Student's t test, calculation of Pearson's correlation coefficient and of the odds ratio. All confidence intervals were at the 95% level.

The dependent variable FA (yes/no) was used to obtain a multiple logistic regression model. Confounding and psychosocial variables were included in or excluded from the regression model by forward stepwise selection, using an entrance value of $P < 0{\cdot}25$ and an exit value of $P = \geqslant 0{\cdot}25$. This criterion, recommended by Greenland (1989), guaranteed that the infor-

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mation lost as a result of exclusion of a variable from the equation was reasonable. However, regardless of the *P* value, we did not exclude from the model any variable that modified the coefficients by more than 10%.

The usefulness of including first-degree interactions in the equation was also considered. The goodness-of-fit of the model was checked with half-normal plot, the Hosmer–Lemeshow test, and with Cook distances, as recommended by Hosmer and colleagues (1991). All analyses were run with the SPSS/PC+ version 4.1 software package (Norušis, 1990) and the LR module of the BMDP/PC90 software package (Dixon, 1990).

RESULTS

Table 2 shows the relationships between independent variables and user status, and Table 3 the relationships between chronic illness variables and user status.

When we controlled for the confounding effect of the independent variables with multiple logistic regression analysis, the variable with the strongest association with FA was mental health, followed by reported chronic illness and family dysfunction. The perception of greater susceptibility to and severity of disease was also significantly associated with FA (Table 4).

Bivariate analysis of the social support variable detected a significant association with FA (test score = 20·4144; $P < 0{\cdot}0000$); however, after adjustment the association became non-significant. It is therefore possible that the information in the variable social support that explains FA status is also included in the variables mental health and family functioning. To test this hypothesis we repeated the multiple regression analysis without mental health or family function. In the final equation the adjusted odds ratio (OR) for the relationship between weaker social support and greater likelihood of FA was 1·46 (95% CI = 1·21–1·71; $P = 0{\cdot}0031$). To determine the specific influence of the social support subscales on FA status we omitted mental health and family functioning from the equation and substituted the two social support subscales. The adjusted OR for the confidant support subscale was 0·98 (95% CI = 0·96–1·00; $P = 0{\cdot}4653$), and that for affective support was 0·93 (95% CI = 0·90–0·96; $P = 0{\cdot}0385$). Thus, for each decrease of one point in the affective support scale (range = 0–16) there was a 7% increase in the likelihood of a patient being an FA.

In a multiple logistic regression analysis to control for all independent variables and cofounders, we substituted each of the four component subscales for the total GHQ-28

Table 4. *Stepwise forward multiple logistic regression model (final step) with frequent attender status as the dependent variable* (N = 655)

Variable	Beta	Odds ratio*	95% CI	*P* (Wald)
Mental Health				
(1) GHQ $\geqslant$ 7; (2) GHQ < 7	1·1249	3·08	2·44–3·89	< 0·0001
Family dysfunction				
(1) APGAR < 7; (2) APGAR $\geqslant$ 7	0·4434	1·56	1·19–2·04	0·0012
Perceived susceptibility – Severity	0·3013	1·35	1·06–1·72	0·0156
Number of chronic illness	0·5843	1·79	1·31–2·46	0·0003
Number of persons in the household	−0·6345	0·53	0·32–0·87	0·0139
Perceived internal locus of health	0·1927	1·21	0·94–1·96	0·1306
Travelling time to health centre				
(1) $\leqslant$ 10 min; (2) > 10 min	0·1980	1·22	0·94–1·58	0·1357
Marital status				
(1) Widowed/Separated				
(2) Married/Single	0·1763	1·19	0·90–1·58	0·2213
Perceived chance locus of health control	−0·1792	0·84	0·94–1·56	0·2065

* OR, adjusted odds ratio. Group (1) was used as the reference group in all calculations. OR 95% CI, 95% confidence interval for the adjusted odds ratio. The exit *P* value was $\geqslant$ 0·25, and the entrance *P* value was < 0·25. However, if the coefficients of the independent variables changed by more than 10% when a given variable was excluded, the variable was kept in the model: 80·7% of the subjects were correctly classified (84% of all normal users and 73·6% of all frequent attenders). $P = 0{\cdot}7602$ according to the Hosmer-Lemeshow test. No standardized residual > 3. There were no notable deviations from normality in the half-normal plot. In 22 cases (3·3%) the residual was > 2, mean Cook distance was 1·608, the minimum was 0·0884 and the maximum was 0·254.

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score. The results for the resulting adjusted OR were: anxiety OR = 1·31 (95% CI = 1·18–1·46; $P = 0·0000$); psychosomatic symptoms OR = 1·24 (95% CI = 1·11–1·39; $P = 0·0002$); social dysfunction OR = 1·34 (95% CI = 0·90–1·99; $P = 0·1513$); and depression OR = 1·39 (95% CI = 0·58–3·36; $P = 0·4647$).

DISCUSSION

Psychosocial variables

The most noteworthy finding of the present study is the clear association between mental health disorder and FA. Mental health disorder predominated (highest odds ratio) over the other factors that were associated with FA, including reported chronic illness. This predominance has been found by some (Barsky *et al*. 1986; De Boer *et al*. 1997), but not all authors (Hibbard & Pope, 1986). We found GHQ-28 scores of > 7 in 85% of FA and 30% of NU. In England (Westhead, 1985), scores on the GHQ-60 were indicative of mental health disorder in 45% of FA and 15% of NU. In a Finnish study with the SCL-25 (Karlsson *et al*. 1995), 44% of FA and 26% of the NU had scores indicative of mental health disorder. In an American study, 51% of FA had some mental health pathology (SCL-90 scale) (Katon *et al*. 1990). Although these data should be compared with caution because of differences in the study populations and the definition of FA, these findings in widely differing populations strongly suggest that the prevalence of mental health disorders is much higher among FA than among NU.

Mean scores on all four subscales of the GHQ were significantly higher in FA than in NU; however, after multivariate analysis the difference was significant only for the anxiety and psychosomatic symptoms subscales. This result needs to be interpreted with caution, because these subscales contain numerous items concerning physical symptoms. The correlation between the GHQ-28 subscales and the clinical interview schedule (CIS) was relatively good for anxiety (0·70), but poor for psychosomatic symptoms (0·32) (Goldberg & Hiller, 1979).

A correct diagnosis of mental health problems (particularly mild mental health disorders) by the primary care physician may reduce primary care high use (Westhead, 1985; Stefansson & Svensson, 1994). This will, however, only be possible if primary care physicians develop adequate skills in the management of these problems. Such skills include the appropriate use of psychopharmacology, effective psychotherapy and appropriate referral of patients to mental health specialists. Randomized trials will be needed to demonstrate the usefulness of this approach (Smith *et al*. 1986*a*, *b*; Katon *et al*. 1992).

The relationship between family dysfunction and use has been reported in many studies (Moreno, 1989; Riley *et al*. 1996). We found that the perception of family dysfunction was closely related with FA. After mental health and reported chronic illness, family dysfunction showed the strongest relation with FA: for frequent attenders family dysfunction was found in 26% of this group, in contrast with 10% in the NU group. Figures between 15% (Smilkstein *et al*. 1982) and 24% (Menguel, 1987) have been reported for the general population in the USA. The differences in prevalence between the American studies and the present study of a Spanish population are probably influenced by the social profile of the study populations. There appear to be family patterns in perceived illness, ways of monitoring, perceiving and interpreting symptoms, and strategies for resolving symptomatic episodes (including use patterns) (Mechanic, 1986). Family dysfunction may influence use through its relation with poor physical or mental health (Campbell, 1986).

Social support was significantly associated with FA; however, after adjustment for mental health and family functioning, the influence of social support became non-significant. These findings may be explained in part by the fact that the functional social support scale we used contains items closely related with family APGAR; moreover, within the Spanish cultural setting the family represents one of the most important sources of social support (Horwitz *et al*. 1985). The relation between mental health and social support was close and bidirectional: poor social support may aggravate mental health disorders, and good social support may considerably improve the course and prognosis of mental health disorders (Williams *et al*. 1981). Path analysis once again demonstrated that the influence of social support on health level occurred indirectly through the variable of mental health (Franks *et al*. 1992).

In the present study we found that affective social support was more closely related with FA than was confidant social support. Similar results were found in the study of Broadhead *et al.* (1989). However, this study did not measure mental health or family functioning, so it is impossible to say how these variables might have affected the influence of social support on health care use. Poor social support in FA has also been frequently found (Browne *et al.* 1982; Daugird & Spencer 1989). Another recent study found that social support interventions for widowers significantly decreased the rate of visits to the family physician (Tudiver *et al.* 1995).

The only health belief scale that displayed a stable, permanent association with FA was perception of susceptibility to and severity of illness. This finding was similar to that reported in most other studies that have used the health belief model (Berkanovic & Telesky 1982; Bush & Iannotti 1990; Hurwicz & Berkanovic 1991). Frequent attenders see themselves as more vulnerable to illness, and when they become ill they judge their illness to be more severe and more likely to be serious (Martin *et al.* 1991). The other belief scales were not associated with FA; this result may reflect a weak association, a lack of validity and reliability of the instrument, inappropriateness of the study design for detecting such an association, or any combination of these factors.

Limitations, biases and methodological issues

The main limitation of this study is the lack of directionality between psychosocial variables and FA. For example, is having a mental health disorder a cause, or a consequence, of being an FA? A patient may believe himself to have a complex, severe illness after many visits to the doctor fail to yield a concrete diagnosis; this type of perception may contribute to psychological distress. Prospective studies appear to show that the mental health disorder arises first, and the subject subsequently becomes an FA (Callahan *et al.* 1994); however, the results of the present study can only be cited as evidence of an association.

The concept of FA used in the present study is based on just one of the many definitions that have been published in the literature. From a quantitative perspective of medical care utilization, one of the most frequently used definitions is that based on tertiles (Freeborn *et al.* 1990). Another common approach is the arbitrary criterion definition, based on a cut-off point that varies between studies: for example, seven visits in 6 months (Ward *et al.* 1994), or nine visits per year (Browne *et al.* 1982). We used stratification by sex and age, as this made it possible to consider a group of FA of both sexes and a wide range of ages; otherwise the FA group would have comprised mainly elderly patients and women (Schrire, 1986).

Another limitation to comparisons between FA studies from different countries is posed by differences in macro-organization (health care system) and micro-organization (health centre, doctor office). The present study was done within the framework of a national health system, and our results can therefore not be considered comparable with those of a study of a private or fee-paying system. None the less, our findings can be compared (with due caution) with those of studies involving prepaid services or Health Maintenance Organization (HMO) services without co-payment per visit.

Only 3·5% of the FA and 4·7% of the NU contacted declined to be interviewed. Although the figure was slightly higher among NU, these rates seemed reasonably small. Other causes for non-participation were distributed in a similar manner in the FA and NU groups. Although there were no significant differences in the distribution of sexes, age groups, or consultation rates between patients who agreed and those who declined to be interviewed, we cannot rule out possible bias attributable to other variables that were not considered here.

Some items of health belief scales did not bear out the results that would have been expected from theoretical models. This may have occurred because the content of the models we used may have partly overlapped. For example, Wallstons' external locus of control (by professionals) may be closely related with Becker's perception of efficacy of medical care.

Our patients' scores on the health belief scales had discrete alpha coefficients, although in some cases the coefficient was rather low. One earlier study reported lower coefficients (Cockburn *et al.* 1987), whereas other authors have found higher values (Wallston & Wallston, 1978). It should be noted that we did not measure the

stability of responses with time (test–retest), neither did we evaluate inter-observer variability.

The prevalence of chronic medical conditions was determined by patient interview rather than by review of medical records. The latter approach would have had the advantage of obtaining the information objectively; however, at the same time it would have had the drawback of not recording some morbidity felt but not expressed by the patient, or expressed but not diagnosed or not taken into account by the doctor (e.g. mental health problems or minor health problems). It is known that the morbidity ratings obtained by interviews with lists tend to be overestimated by the FA and underestimated by the NU. This may have skewed the results towards excessive weight being given to morbidity as an explanatory factor of frequent attendance (Connelly *et al.* 1991).

Although we studied variables that can predict consultation rates, some variables were not dealt with directly. For example, variables related to the family physician, such as the detection and management of mental illness, which may affect the overall use of health services (Smith *et al.* 1986*b*).

Conclusions

Our findings document the association of psychosocial factors and primary health care use. Among these factors, mental health was the main factor associated with FA status, and family dysfunction showed the second strongest association. We suggest that the effective management of mental health problems from a family-based approach may reduce primary health care high use.

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APPENDIX: HEALTH BELIEF SCALES

	Items	Postulated construct
1	Seeing the doctor is a good way to stay healthy	Perceived efficacy
2	Colds will go away on their own	Health education
3	What I want most from my doctor is for him/her to listen to me carefully	Affective expectations
4	I do not get very worried when I get sick	Perceived severity (negative)
5	My health centre is a comfortable place	Perceived barriers (negative)
6	People around me do not influence whether I stay healthy or get sick	External control (negative)
7	The most important thing I expect from my doctor is courtesy	Affective expectations
8	The health centre is near my home	Perceived barriers (negative)
9	My health is very fragile and I can become sick any time	Perceived susceptibility
10	If I take care of myself properly I can avoid many diseases	Perceived susceptibility (negative)
11	I am less susceptible to illnesses than other people	Perceived susceptibility (negative)
12	I do not think the doctor can help me too much when I am sick	Perceived efficacy (negative)
13	Having regular contact with my physician is the best way to avoid illness	External control
14	When I am healthy, I am just plain lucky	Chance control
15	Following doctor's orders to the letter is the best way to stay healthy	External control
16	The main thing which affects my health is what I do myself	Internal control
17	It does not matter whether the doctor informs me well about my illness	Technical expectations (negative)
18	Most of the things that affect my health happen to me by accident	Chance control
19	I am worried about getting sick	Perceived severity
20	There is a lot I can do to keep from getting sick	Perceived susceptibility (negative)
21	In general I do not have to wait very long to see the doctor	Perceived barriers (negative)
22	I do not have faith that my doctor will cure me	Perceived efficacy (negative)
23	My physical well-being depends on how well I take care of myself	Internal control
24	Getting sick does not depend on fate	Chance control (negative)
25	When I recover from an illness, it is usually because other people have been taking good care of me	External control

26	Being plump is not bad for your health	Health education
27	I do not care whether the physician is kind as long as he/she can cure me	Technical expectation
28	No matter what I do, if I am going to get sick, I will get sick	Chance control
29	The most important thing in a doctor is for him/her to know how to cure people	Technical expectation
30	The treatment my doctor prescribes is generally the right one	Perceived efficacy
31	The most important thing in treating diarrhoea is the diet	Health education
32	If you have a fever of 39 °C the first thing you must do is get a shot of antibiotics	Health education
33	The doctor is not likely to see me when I need him/her	Perceived barriers
34	If I get sick, I cannot get well again by myself	Internal control (negative)
35	When I am sick I generally do the same things as when I am healthy	Perceived severity (negative)
36	In general, when I get sick I usually need to go to the emergency room	Perceived severity
37	When I get sick I am to blame	Internal control
38	I do not expect the doctor to be kind to me	Affective expectations (negative)

Response: [1] Disagree completely; [2] Disagree; [3] Neither agree nor disagree; [4] Agree; and [5] Agree completely.

The factorial analysis with varimax rotation identified 12 factors that explained 54·6% of the variance. We calculated the alpha coefficient for each of these factors and excluded those with a coefficient of less than 0·40 (factors 10, 11 and 12). The nine remaining factors were:

Factor 1: Perceived affective expectations (items: 3, 7), alpha = 0·72.

Factor 2: Perceived efficacy of medical care (items: 15, 29, 31), alpha = 0·58.

Factor 3: Perceived susceptibility to and severity of the disease (items: 9, 13, 28, 32, 36), alpha = 0·61.

Factor 4: Perceived scepticism about medical care (item: 12, 17, 22), alpha = 0·58.

Factor 5: Perceived barriers to medical care (item: 21, 33), alpha = 0·46.

Factor 6: Perceived resistance to and mildness of the disease (item: 4, 11, 35), alpha = 0·41.

Factor 7: Perceived chance locus of health control (item: 14, 18), alpha = 0·60.

Factor 8: Perceived internal locus of health control (item: 10, 20, 23), alpha = 0·46.

Factor 9: Perceived technical expectations (item: 27, 38), alpha = 0·48.

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