

ORIGINAL PAPER

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Burden on the families of patients with schizophrenia: results of the BIOMED I study

Accepted: 31 December 1997

Abstract The burden, the coping strategies and the social network of a sample of 236 relatives of patients with schizophrenia, living in five European countries, were explored by well-validated assessment instruments. In all centres, relatives experienced higher levels of burden when they had poor coping resources and reduced social support. Relatives in Mediterranean centres, who reported lower levels of social support, were more resigned, and more often used spiritual help as a coping strategy. These data indicate that family burden and coping strategies can be influenced by cultural factors, and suggest that family interventions should have also a social focus, aiming to increase the family social network and to reduce stigma.

Introduction

The study of the difficulties experienced by families of those with enduring and severe mental health problems has been fostered by the development of deinstitutionalization programmes and the move towards more community-based services.

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The early studies on family burden provided basic information on the nature of the difficulties encountered by the families, and classified burden into objective and subjective dimensions (Hoenig and Hamilton 1966). Objective burden refers to practical problems, such as disruption to family relationships, constraints in social, leisure and work activities, and financial difficulties. Subjective burden describes the psychological reactions that family members experience, e.g. feeling of loss, depression, anxiety and embarrassment in social situations (Fadden et al. 1987).

Recent studies have led to a more sophisticated understanding of what contributes to or protects against burden. A number of variables have been identified as important, including: (1) socio-demographic characteristics of the relatives, e.g. it has been found that female sex, low level of education, and being married to the patient are associated with a higher level of burden; (2) clinical characteristics of the illness, e.g. it has been reported that poor social functioning, long duration of illness, presence of negative symptoms and disturbing behaviours, and a greater number of hospitalisations all contribute to increased burden, and that disability predicts high levels of burden more than symptomatology; (3) social support and personal resources, e.g. burden has been found to be lower among relatives with a supportive social network or with a broad range of coping skills (Noh and Turner 1987; Birchwood and Cochrane 1990; Veltro et al. 1994; Magliano et al. 1995; Solomon and Draine 1995a). In addition, adaptive coping skills have been found to be associated with a larger and more supportive social network, which, in turn, can protect against high levels of burden (Solomon and Draine 1995b).

Limitations to our understanding of family burden still remain, due to methodological factors and the lack of cross-cultural research in this area. Few studies to date have taken a multi-factorial perspective, examining simultaneously risk and protective factors (Solomon and Draine 1995a,b). In addition, several studies have enrolled small samples or used not validated instruments.

Finally, most studies have been carried out in Britain or the United States, which limits the application of their findings in other contexts, as burden is likely to be influenced by social factors, such as public attitudes toward mental illness, and mental health services provision.

Since family burden is likely to be affected by several factors related to the geographical and social context, and given the lack of European studies on this topic, the European Union, within the framework of the BIOMED I programme, funded an international study to examine burden and coping among families of those with schizophrenia. The study was carried out in Aylesbury (UK), Bonn, Athens, Naples and Lisbon, using a standardised methodology, applied with high inter-rater reliability by trained researchers.

The present paper describes burden, coping strategies and social network in a sample of 236 key-relatives of patients with schizophrenia in the above-mentioned centres. The study aimed to test whether high levels of burden are associated with poor coping strategies and reduced social network in the relatives.

Subjects and methods

Participating centres

The centres involved in the study were as follows: the Department of Psychiatry, University of Naples SUN, Italy; the Aylesbury Vale Community Health Care Centre, Aylesbury, England; the Rheinische Landeslinik, Bonn, Germany; the Community Mental Health Service, University of Athens, Greece; and the Department of Psychiatry, University of Lisbon, Portugal. These centres have well-established community mental health services and expertise in this research field.

Assessment instruments

The assessment instruments selected for use in the study were the Present State Examination, tenth edition (PSE-10), the Disability Assessment Schedule (DAS), the Family Problems Questionnaire (FPQ), the Family Coping Questionnaire (FCQ) and the Social Network Questionnaire (SNQ).

The PSE-10 (Wing et al. 1990) is a semi-structured interview containing algorithms for psychiatric diagnoses according to ICD-10. The DAS (World Health Organization 1988) is a semi-structured interview assessing the social disability of psychiatric patients.

The FPQ (Morosini et al. 1991) is a modified version of a self-administered questionnaire developed by the National Health Institute of Rome in collaboration with the Department of Psychiatry of Naples University. It consists of 29 items, grouped on the basis of factor analysis (percentage of explained variance 45%) into the following dimensions: (1) objective burden – Cronbach's $\alpha = 0.88$; (2) subjective burden – $\alpha = 0.74$; (3) support received by professionals and from members of social network – $\alpha = 0.72$; (4) relative's positive attitude toward the patient – $\alpha = 0.61$; (5) relative's criticism of the patient's behaviour – $\alpha = 0.24$. Only data on 1–3 above are reported here.

The FCQ (Magliano et al. 1996) is a self-administered questionnaire consisting of 34 items, divided into the following subscales: (1) information – $\alpha = 0.66$; (2) positive communication

– $\alpha = 0.55$; (3) maintenance of social interest – $\alpha = 0.77$; (4) coercion – $\alpha = 0.52$; (5) avoidance – $\alpha = 0.49$; (6) resignation – $\alpha = 0.69$; (7) patient's social involvement – $\alpha = 0.49$; (8) use of alcohol and drugs – one item; (9) collusive reactions toward patient's odd behaviour and non-compliance to prescribed treatments – $\alpha = 0.60$; (10) search for spiritual help – one item; (11) talking with friends – one item.

The Social Network Questionnaire (SNQ) is a self-report questionnaire that includes 15 items, divided on the basis of factor analysis into four factors (percentage of explained variance 56%) measuring: (1) the quality and frequency of social contacts of the respondent – $\alpha = 0.68$; (2) practical social support – $\alpha = 0.75$; (3) emotional support – $\alpha = 0.66$; (4) the presence and quality of an intimate supportive relationship – $\alpha = 0.56$.

PSE-10 and DAS: training and reliability assessment

Five researchers (one per centre) participated in an official PSE-10 training course. Afterwards, they attended three sessions based on the presentation of taped interviews with psychiatric patients, and assessed independently the patients' symptoms according to the PSE-10 items. The inter-rater reliability ranged from 0.90 to 1 for 81% of the items.

Thirteen researchers (two or three per centre) attended a training course in the use of the DAS, including: (1) a detailed description of each section of the instrument and a discussion of general principles of ratings; (2) the presentation of taped interviews and the discussion of participants' independent ratings. The inter-centre reliability was then measured by presenting a further set of taped interviews, and was found to range from 0.47 to 1 for 87% of the DAS items. The intra-centre reliability was evaluated by asking the researchers of each centre to make independent ratings on another set of taped interviews. The Cohen's kappa ranged between 0.76 and 1 in Naples; between 0.51 and 1 in Aylesbury; between 0.42 and 1 in Athens; between 0.63 and 1 in Bonn and between 0.43 and 0.83 in Lisbon.

Self-administered questionnaires: translation, training, and validity and reliability assessment

The original versions of the FPQ, FCQ and SNQ were preliminarily discussed at a 2-day meeting by the researchers of the participating centres with the team that had developed those instruments. Some items were rephrased in order to make them more suitable for use in the different centres. The instruments were then translated into German, Greek and Portuguese and backtranslated into English by expert professionals. Ten researchers (two per centre) attended a training course, in which the use of the instruments was explained and some role-play sessions were performed.

A face validity study was then carried out. Each questionnaire was compiled by a sample of 50 relatives (10 per centre), who were asked to: (1) identify the items that they did not understand; (2) provide their feedback on the relevance of the situations described in the items. On the basis of the relatives' comments, several items were rephrased and some were added.

A test-retest reliability study was subsequently conducted at each centre, by the administration of the questionnaires to the same 50 relatives 10 days later. The Cohen's kappa ranged between 0.50 and 1 for 79% of the items of the FPQ, for 48% of the items of the FCQ, and for 69% of the items of the SNQ.

Subjects and study design

The study was conducted on a total of 236 key-relatives of patients recruited consecutively at the above-mentioned centres between June 1995 and August 1996. Inclusion criteria for patients were:

1. Age between 18 and 50 years
2. Diagnosis of schizophrenia according to the International Classification of Diseases, tenth edition (ICD-10, World Health Organization, 1992)
3. Presence of at least one adult relative living with the patient in the same environment at least 5 days per week for at least 9 months during the last year
4. No hospitalization during the last month
5. Absence of disabling physical or psychiatric diseases and of drug abuse in the relatives living with the patient.

Informed consent for participation in the study was provided by all patients, in addition to permission to contact their relatives. For each patient, the key-relative (defined as the relative spending the highest number of hours in contact with the patient during the last year) was contacted and asked to participate in the project. Other adult relatives living in the same household were also invited to participate. Data concerning non-key-relatives will be reported in a further paper.

The diagnosis of schizophrenia was confirmed by the PSE-10, and the degree of social disability was evaluated by administering the DAS to the key-relative. In addition, each relative was asked to complete the FPQ, the FCQ and the SNQ. A socio-demographic schedule was compiled for each patient and relative. Information about the care and the interventions available in each centre was collected using an ad-hoc schedule.

Analysis of data

Data concerning patients and relatives recruited in the five centres were compared by means of chi-square test or analysis of variance, as appropriate.

Correlations between the level of family burden and the relatives' socio-demographic variables, coping strategies and social network, as well as the patients' socio-demographic and clinical variables, were explored in each group by means of Spearman's r coefficient. Because of the large number of correlations, only those at 0.01 level were regarded as significant.

In addition, hierarchical multiple regression analyses were used to explore the simultaneous effects of coping strategies (block 1) and of social and professional resources (block 2) on the levels of objective and subjective burden in the whole sample (Table 7).

Results

Descriptive results

The patient sample recruited for the study in each centre was representative of the population of patients with schizophrenia attending that centre in terms of age, sex, educational level and duration of illness. The percentage of refusals in the whole sample was 8%.

The ICD-10 diagnosis was paranoid schizophrenia (F20.0) in 63% of the enrolled patients, hebephrenic schizophrenia (F20.1) in 4%, undifferentiated schizophrenia (F20.3) in 27%, residual schizophrenia (F20.5) in 3%, simple schizophrenia (F20.6) in 1%, and schizophrenia, other (F20.8) in 2%. No significant difference among the centres was found with respect to the distribution of these diagnoses.

The other characteristics of the patients and the interventions provided by the staff of each centre are reported in Table 1. In the Bonn and Aylesbury centres, the percentage of patients who were married, the percentage of patients who had attempted suicide in the past, and the mean number of previous compulsory admissions were significantly higher than in the other three. Moreover, in the patients recruited in Aylesbury, the frequency of previous problems with the law was significantly higher than in the other centres.

All patients were on maintenance antipsychotic drug treatment.

The socio-demographic characteristics of the key-relatives and the interventions provided to them by the staff of the centres are summarised in Table 2. Most of the relatives were female and parents. In Naples and Athens, the mean number of hours in daily contact with the patient was significantly higher than in the

Table 1 Patients: socio-demographic and clinical characteristics and interventions provided by the staff of the centres (DAS Disability Assessment Schedule)

	Naples (<i>N</i> = 48)	Athens (<i>N</i> = 50)	Lisbon (<i>N</i> = 50)	Aylesbury (<i>N</i> = 38)	Bonn (<i>N</i> = 50)
Sex, % males*	48	58	78	76	70
Age in years, mean (SD)**	27.6 (7.0)	31.9 (7.6)	34.4 (10.1)	32.1 (9.9)	34.4 (8.0)
Marital status, % single**	96	94	88	68	66
Education level in years, mean (SD)**	11.5 (3.4)	12.1 (3.0)	8.8 (3.0)	12.3 (3.2)	11.0 (2.0)
Current occupation, %*	17	43	22	16	26
No. of family members, mean (SD)**	3.2 (1.5)	2.2 (1.0)	2.6 (2.1)	2.4 (1.3)	2.1 (1.1)
Years of illness, mean (SD)	9.1 (7.0)	10.8 (7.0)	13.1 (8.0)	9.7 (7.7)	9.5 (7.0)
Previous hospital admissions, mean (SD)	2.0 (2.0)	1.6 (3.1)	2.8 (3.2)	2.4 (2.4)	3.0 (2.7)
Previous compulsory admissions, mean (SD)*	0.2 (0.8)	0.7 (1.2)	0.6 (1.7)	0.9 (1.2)	1.3 (2.1)
Global score on DAS, mean (SD)**	2.5 (1.3)	1.7 (0.8)	2.4 (1.0)	2.1 (0.9)	1.9 (1.0)
Previous suicide attempts, % patients**	17	18	18	50	48
Previous law problems, % patients*	4	4	8	12	7
Current maintenance antipsychotic therapy, % patients	100	100	100	100	100
Current individual supportive psychotherapy, % patients**	13	78	44	13	10
Current vocational rehabilitation, % patients**	4	72	6	55	2

Statistical differences among the five centres: * $P < 0.01$; ** $P < 0.001$ (F or X^2 , as appropriate)

Table 2 Key-relatives: socio-demographic characteristics and interventions provided by the staff of the centres

	Naples (<i>N</i> = 48)	Athens (<i>N</i> = 50)	Lisbon (<i>N</i> = 50)	Aylesbury (<i>N</i> = 38)	Bonn (<i>N</i> = 50)
Sex, % males	23	30	14	32	30
Age, in years, mean (SD)*	52.8 (11.7)	59.0 (11.9)	58.8 (12.5)	50.1 (14.4)	55.1 (13.6)
Education level in years, mean (SD)*	8.6 (5.1)	9.2 (4.3)	6.2 (4.4)	10.2 (4.1)	10.4 (2.4)
Currently employed, %	42	32	36	50	54
Relationship with the patient, %*					
Parent	88	88	78	66	56
Spouse	4	6	12	32	28
Other	8	6	10	2	16
No. of years with the patient, mean (SD)*	26.0 (5.3)	30.4 (7.9)	28.1 (10.6)	22.5 (9.6)	21.5 (11.6)
Daily hours with the patient, mean (SD)*	9.1 (3.4)	7.7 (3.8)	6.7 (3.7)	5.6 (3.0)	6.4 (4.4)
Informative sessions on the patient's illness, % families**	19	96	64	63	2
Psychoeducational interventions, % families**	2	14	0	8	0

Statistical differences among the five centres: * $P < 0.01$; ** $P < 0.001$ (F or χ^2 , as appropriate)

other centres. In Aylesbury and Bonn, the percentage of relatives who were married to the patient and the relatives' educational level were higher than in the other centres.

The percentage of relatives receiving information about the patient's illness showed a wide variation across the centres, ranging from 0 to 96%. Psychoeducational interventions were provided to less than 15% of families in each of the centres.

The level of family burden in the five samples is reported in Table 3. In all the centres, three variables (constraints on social activities, negative effects on the family life, and feeling of loss) consistently achieved the highest mean scores. In the Bonn centre, the objective and subjective dimensions of burden were significantly lower than in the other four. The level of objective and subjective burden was not related to the present symp-

tomatology in any centre; in particular, there was no difference in burden between the relatives of patients who were currently psychotic and those who were not.

The relatives' coping strategies, social network and social support in the five samples are described in Table 4. In all the centres except Bonn, the most commonly used coping strategies were positive communication with the patient and his/her involvement in family and social activities. In Bonn, while positive communication with the patient received the highest score, relatives also reported the frequent use of maintenance of their own social interests as a coping strategy. Seeking spiritual help was more frequent in Naples, Athens and Lisbon.

In the Athens centre, the burden was higher among female relatives (objective burden: $F = 5.9$, $P < 0.02$, $df = 1, 48$; mean \pm sd = 1.5 ± 0.4 vs 1.9 ± 0.7 ; subjective burden: $F = 8.5$, $P < 0.005$, $df = 1, 48$;

Table 3 Mean scores of family burden in the five samples. Higher score indicates to higher frequency (range 1–4)

Family burden components	Naples (<i>N</i> = 48) Mean (SD)	Aylesbury (<i>N</i> = 38) Mean (SD)	Bonn (<i>N</i> = 50) Mean (SD)	Athens (<i>N</i> = 50) Mean (SD)	Lisbon (<i>N</i> = 50) Mean (SD)
Global objective dimension*	1.9 (0.6)	1.8 (0.6)	1.4 (0.5)	1.8 (0.7)	1.7 (0.5)
Global subjective dimension**	2.3 (0.6)	2.2 (0.7)	1.6 (0.6)	2.3 (0.8)	2.2 (0.6)
Wakening during the night	1.7 (0.8)	1.5 (0.8)	1.4 (0.7)	1.3 (0.6)	1.5 (0.7)
Work problems	1.8 (0.9)	1.6 (0.9)	1.3 (0.5)	1.6 (0.9)	1.4 (0.7)
Financial problems	1.5 (0.7)	1.6 (0.8)	1.2 (0.4)	1.7 (0.9)	1.4 (0.6)
Constraints in social activities	2.0 (0.9)	2.0 (0.8)	1.5 (0.6)	1.9 (0.9)	1.9 (0.7)
Negative effects on family life**	2.8 (1.2)	2.7 (1.3)	2.0 (1.1)	3.1 (0.9)	2.6 (1.2)
Neglect of other family members	1.7 (0.9)	1.6 (1.0)	1.3 (0.6)	1.7 (0.8)	1.5 (0.7)
Effects on the children	1.7 (0.9)	1.8 (1.0)	1.6 (1.0)	2.0 (1.0)	1.8 (1.0)
Feeling of loss**	3.2 (0.8)	3.4 (0.1)	2.0 (0.9)	3.0 (1.0)	3.0 (1.0)
Feeling of sadness**	2.2 (0.9)	1.8 (0.9)	1.5 (0.7)	2.2 (1.0)	2.2 (0.9)
Worries about the future*	1.8 (0.9)	2.1 (1.0)	1.5 (0.7)	2.2 (1.3)	2.3 (1.0)
Embarrassment in public places*	1.5 (0.7)	1.5 (0.8)	1.2 (0.6)	1.5 (1.0)	1.9 (1.0)
Feeling of guilt	1.5 (0.8)	1.4 (0.8)	1.1 (0.3)	1.2 (0.5)	1.3 (0.6)
Feeling of not being able to stand the situation any longer*	2.1 (1.0)	1.7 (0.9)	1.5 (0.8)	2.1 (1.0)	1.7 (0.8)

Statistical differences among the five centres: * $P < 0.01$; ** $P < 0.001$

Table 4 Mean scores of coping strategies, social network and help received by the family in the global sample and in each of the five centres. Higher score indicates to higher frequency (range 1–4)

Variables explored	Global sample (<i>N</i> = 236) Mean (SD)	Naples (<i>N</i> = 48) Mean (SD)	Aylesbury (<i>N</i> = 38) Mean (SD)	Bonn (<i>N</i> = 50) Mean (SD)	Athens (<i>N</i> = 50) Mean (SD)	Lisbon (<i>N</i> = 50) Mean (SD)
Coping strategies						
Coercion**	2.1 (0.7)	2.5 (0.7)	2.2 (0.5)	1.7 (0.7)	2.1 (0.6)	1.8 (0.6)
Social involvement of the patient**	3.1 (0.9)	3.4 (0.6)	3.0 (1.0)	2.8 (1.0)	3.5 (0.5)	3.0 (0.8)
Collusion	2.3 (0.9)	2.2 (0.7)	2.5 (0.9)	2.3 (0.9)	2.4 (1.0)	2.0 (0.8)
Positive communication	3.4 (0.6)	3.4 (0.6)	3.5 (0.5)	3.4 (0.5)	3.3 (0.6)	3.4 (0.6)
Avoidance	1.3 (0.7)	1.4 (0.7)	1.2 (0.6)	1.2 (0.5)	1.5 (0.9)	1.3 (0.5)
Information**	2.1 (0.8)	2.8 (0.9)	1.8 (0.8)	1.8 (1.0)	2.1 (1.3)	1.8 (0.9)
Maintenance of social interests**	2.6 (0.8)	2.4 (0.7)	2.9 (0.8)	3.0 (0.6)	2.6 (0.7)	2.3 (0.8)
Talking with friends**	2.2 (1.1)	2.6 (1.1)	2.4 (1.2)	2.0 (1.0)	2.2 (1.0)	1.7 (1.0)
Resignation**	2.2 (0.9)	2.6 (0.8)	2.1 (0.9)	1.6 (0.8)	2.6 (0.8)	2.4 (0.8)
Spiritual help*	2.8 (0.3)	3.1 (0.8)	2.6 (1.0)	2.3 (1.0)	2.9 (1.0)	3.0 (1.0)
Use of alcohol*	1.2 (0.7)	1.0 (0.3)	1.0 (0.2)	1.2 (0.6)	1.5 (1.1)	1.3 (0.8)
Social network						
Emotional support**	3.0 (0.7)	2.7 (0.8)	3.3 (0.6)	3.1 (0.6)	2.8 (0.7)	3.0 (0.6)
Practical support*	3.1 (0.9)	2.9 (0.8)	2.9 (1.0)	3.4 (0.6)	3.3 (0.7)	2.9 (0.8)
Social contact	2.3 (0.7)	2.4 (0.5)	2.2 (0.6)	2.3 (0.7)	2.5 (0.8)	2.1 (0.6)
Supportive partner*	2.7 (0.8)	2.6 (0.8)	3.0 (0.6)	2.7 (0.7)	2.4 (0.1)	2.7 (0.7)
Help received by the family						
Professional help**	3.1 (0.7)	3.1 (0.7)	2.8 (0.7)	3.0 (0.7)	3.6 (0.4)	2.9 (0.5)
Understanding by friends**	2.7 (1.0)	2.6 (1.0)	3.0 (0.9)	2.8 (1.0)	3.0 (0.9)	2.3 (0.8)

Statistical differences among the five centres: * $P < 0.01$; ** $P < 0.001$

mean \pm sd = 1.9 ± 0.6 vs 2.5 ± 0.7), and the objective dimension was higher among younger relatives ($r = -0.40$, $P < 0.003$). In Aylesbury, the burden was higher among female relatives (objective burden: $F = 13.1$, $P < 0.001$, $df = 1, 36$; mean \pm sd = 1.3 ± 0.4 vs 2.0 ± 0.6 ; subjective burden: $F = 8.4$, $P < 0.006$, $df = 1, 36$; mean \pm sd = 1.8 ± 0.7 vs 2.4 ± 0.6), and when the relatives spent more hours in daily contact with the patient ($r = 0.43$, $P < 0.007$). In Lisbon, objective burden correlated with the levels of patient's disability ($r = 0.50$, $P < 0.001$).

Correlational results

The statistically significant relationships of burden with both coping strategies and social network in the five samples are reported in Tables 5 and 6. In all the samples, resignation correlated with both objective and subjective burden. Reduction of social interests correlated with the subjective dimension of burden. In all the centres except Bonn, significant correlations were found between objective burden and reduction in the relatives' social interests and their avoidance of the patient. Objective burden was higher among relatives receiving poorer practical support in all the centres except Aylesbury.

Hierarchical regression results

The results of the hierarchical multiple regression, reported in Table 7, show that coping strategies account

for 56% of the variance of objective burden, and for 47% of the variance of subjective burden, while social and professional resources increase the explained variance to a very limited extent. High levels of both objective and subjective burden were associated with reduction of social interests, talking with friends, resignation, avoidance of the patient. In addition, objective burden was associated with positive communication, seeking for information and poor practical social support, whereas subjective burden was associated with use of alcohol and spiritual help.

Discussion

Family burden and variables that affect it

The results of the present study confirm some of the findings of previous research on family burden. The majority of key-relatives in the study were female (between 70 and 86%) and parents of the patient. Relatives in the study reported that caring for someone with schizophrenia resulted in restrictions in their own social activities, negative effects on family life, and feeling of loss, which is consistent with previous studies (Fadden et al. 1987; Maurin and Boyd 1990).

High levels of both subjective and objective burden were associated with resignation on the part of the relative. Very few families in the overall sample received psychoeducational interventions. Given that these interventions have been found to be effective in helping families to cope (De Jesus Mari and Streiner 1994), it may be that as families are not being helped to develop

Table 5 Correlations of objective burden with social network and coping strategies in the five centres (Spearman's *r* coefficient)

	Naples (<i>N</i> = 48)	Aylesbury (<i>N</i> = 38)	Bonn (<i>N</i> = 50)	Athens (<i>N</i> = 50)	Lisbon (<i>N</i> = 50)
Coping strategies					
Coercion			0.41**	0.36**	0.36**
Avoidance	0.42**	0.37*		0.52***	
Social involvement of patient		0.44**			
Information		0.50***	0.46***	0.39**	0.32*
Maintenance of social interests	-0.46***	-0.47**		-0.50***	-0.53***
Talking with friends		0.40**	0.46***		
Use of alcohol					0.36**
Resignation	0.45***	0.58***	0.55***	0.73***	0.59***
Social network					
Practical support	-0.43**				-0.47***
Affective support	-0.32*				
Help received by the family					
Professional help				-0.33*	
Understanding by friends				-0.42**	

P* < 0.02; *P* < 0.01; ****P* < 0.001

Table 6 Correlations of subjective burden with social network and coping strategies in the five centres (Spearman's *r* coefficient)

	Naples (<i>N</i> = 48)	Aylesbury (<i>N</i> = 38)	Bonn (<i>N</i> = 50)	Athens (<i>N</i> = 50)	Lisbon (<i>N</i> = 50)
Coping strategies					
Avoidance	0.50***	0.43**			
Social involvement		0.37*			
Coercion	0.38**		0.49***		
Information	0.41**	0.43**			
Maintenance of social interests					-0.51***
Use of alcohol			0.40**	0.34*	
Resignation	0.61***	0.62***	0.82***	0.68***	0.50***
Spiritual help			0.41*		
Social network					
Practical support			-0.44***		
Help received by the family					
Professional help			-0.43**		

P* < 0.02; *P* < 0.01; ****P* < 0.001

coping strategies, they perceive that they have no option but to resign themselves to the situation.

In the study, social factors emerged as being very significant and were related to both coping and burden. There was a clear association between reduction in the relatives' own social interests and increased levels of objective burden in all of the centres except Bonn. In addition, the absence of practical support was associated with high objective burden in Naples and Lisbon. This supports research findings that social network is a critical factor in reducing the detrimental effects of stress, serving as a buffer between psychological well-being and stressful events (Buchanan 1995). Conversely, people caring for someone with a disorder such as schizophrenia, for a variety of reasons (e.g. stigma, fatigue, concerns about leaving their relative alone at home) have reduced access to sources of social support. This, in turn, can increase the level of stress and the risks to their own mental health (Callaghan and Morrissey 1993; Winefield and Harvey 1993).

A further variable influenced by social factors is coping. In the study, the most commonly used coping

strategies were social in nature. These were the involvement of the patient in social activities either in the family or outside the family, and positive communication with the patient. It would appear therefore that, in addition to direct effects of social network on burden, there may be also indirect effects through its influence on the choice of coping strategies. In the Solomon and Draine (1995b) study on relatives of people with serious mental illness, coping was found to be specifically related to the density of the person's social network and, in turn, social support was the strongest factor in explaining adaptive coping among family members.

An interesting finding of the study was that burden was associated with spending a high number of hours in contact with the patient only in the English sample. In contrast with previous studies (Bebbington and Kuipers 1994), therefore, spending a lot of time with the patient was not a factor constantly contributing to increased burden, and, in fact, increasing the time with the patient by involving him/her in social activities was a frequently used coping strategy.

Table 7 Hierarchical multiple regression: effects of the coping strategies and social resources on the level of objective and subjective burden of the whole sample

Blocks	Objective burden (β value)		Subjective burden (β value)	
1. Coping strategies				
Coercion	0.001	-0.02	0.06	0.06
Social involvement of the patient	-0.12*	-0.1	-0.03	-0.03
Collusion	0.06	0.06	-0.01	-0.003
Positive communication	0.14*	0.14*	0.1	0.11
Avoidance	0.32***	0.29***	0.20***	0.20**
Seeking for information	0.15*	0.15**	0.02	0.02
Maintenance of social interests	-0.36***	-0.36***	-0.16*	-0.18*
Talking with friends	0.22***	0.25***	0.17	0.14*
Resignation	0.25***	0.22***	0.40***	0.40***
Spiritual help	-0.03	-0.04	0.13*	0.13*
Use of alcohol	0.1	0.1	0.12*	0.12*
2. Social and professional resources				
Emotional support		-0.03		-0.03
Practical support		-0.13*		0.08
Professional help		-0.02		-0.04
Understanding by friends		-0.06		-0.05
Centre		-0.01		0.03
R^2	0.56	0.58	0.47	0.48

* $P < 0.05$; ** $P < 0.01$;
*** $P < 0.001$

Differences and similarities among the centres

While there were common findings across the five centres, there were also differences, some of which appeared to reflect a divide between the Mediterranean centres (Naples, Athens and Lisbon) and the north-European centres (Aylesbury and Bonn) and some of which were specific to the particular country. For example, relatives in the Mediterranean centres are more resigned and frequently use spiritual help as a coping strategy, whereas those in northern centres do not. Similarly, the former report a greater level of reduction of social interests, and lower levels of both practical and emotional support from their social network.

The fact that the extent and the quality of the social network was greater in the north-European centres could be accounted for by the lower stigma found in these countries (Hall et al. 1994; Rossler and Salize, 1995) and may also be a cause or effect of the higher percentage of married patients found in Bonn and Aylesbury than in the other centres.

Another common characteristic between the north-European centres was a significantly higher suicide rate than in Mediterranean centres. Problems with the law were significantly higher in Aylesbury than in any of the other four centres, which may reflect cultural differences in perception of the disturbing behaviours of those with disorders such as schizophrenia. However, given the descriptive design of this study, further studies are needed to specifically test these hypotheses.

On many factors, Bonn had different results from the other four centres. In particular, the lower level of burden may be associated with differences in coping styles. Relatives in that centre involved the patient less in social activities and reported less loss, and there was a significantly higher frequency of compulsory hospitalisation than in any of the other centres. These differences indicate that burden and coping can be influenced by

cultural factors, and that it is unwise to generalise the findings of studies from one culture to another, further confirming the value of the present cross-European study. These cultural factors will be described in more detail in a further paper based on this research.

Implications for practice

The findings of this descriptive study indicate that relatives of those with schizophrenia experience high level of burden when they have poor coping resources and reduced social support. This has service implications for how these families can best be helped. In addition to psychoeducational interventions, whose efficacy is already well established, interventions with a social focus, such as multi-family groups (McFarlane et al. 1995), should also be considered, as these have been shown to be effective in increasing the family member social network and reducing stigma. However, as mentioned earlier, a low percentage of our sample received psychoeducational interventions, indicating that, in spite of the proven efficacy of these approaches, there are difficulties in their implementation in practice (Kavanagh et al. 1993).

Methodological considerations

To our knowledge, this is the first investigation of families of patients with schizophrenia that presents simultaneously the following characteristics:

1. Being carried out in different European countries
2. Having explored not only the family burden, but also the social and personal resources of the relatives (i.e. social network and coping strategies), which are likely to influence the level of burden

3. Using standardised assessment instruments with high inter- and intra-centre reliability.

A limitation of the present study is that there was only one centre per country, and there may be differences within countries that were therefore not identified. Moreover, a large number of correlations was explored, so that the probability of chance findings was high. We attempted to reduce this bias by considering as significant only those correlations at the $P < 0.01$ level. On the other hand, it should be underlined that several correlations between burden and coping strategies found in an individual centre were also significant in the regression analysis performed on the global sample.

Future research

In our study we found many correlations between family burden and coping strategies. A possible explanation is that these correlations depend in part on common factors underlying those constructs, which at the moment are not sufficiently explored. Therefore, future investigations are needed to specifically address this topic.

In addition, future research should address the following aspects of burden and coping: the effect of family interpretation of mental illness on the level of burden; burden on different members of the same family (i.e. key-relatives vs non-key-relatives); the link among family burden, coping strategies and psychiatric symptoms in relatives and patients.

Acknowledgements This study was supported by the European Commission (BIOMED I grant no. PL93-1615). The following researchers participated in data collection: A. Fiorillo, C. Malanzone, D. Sorrentino (Naples, Italy); A. Robinson (Aylesbury, England); B. Hager, B. Landman (Bonn, Germany); M. Economou (Athens, Greece); M. Xavier (Lisbon, Portugal). The authors are indebted to Drs. P.L. Morosini (National Mental Health Institute, Rome, Italy) and F. Veltro (Department of Psychiatry, University of Naples SUN, Italy), for their advice in the development and validation of assessment instruments, and to Dr. M. Vidal, European Commission, for administrative support.

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