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# **FACTORS ASSOCIATED WITH STRESS RESPONSES IN STAFF CARING FOR PATIENTS WITH CYSTIC FIBROSIS.**

*Alan Carr, Paula Roseingrave and M. X. FitzGerald*

## **INTRODUCTION**

Caring for adults with cystic fibrosis and their families in the hospital setting is very demanding. Such care includes providing both medical treatment and counselling for patients and family members. Medical treatment focuses on the management of the pancreatic insufficiency and respiratory difficulties which characterize the condition. Physiotherapy and dietary control are a routine part of such programmes (Hodson, 1995). Heart-lung-transplant occurs for only a minority of patients (Madden, 1995). With optimal medical care it has been estimated that the median survival age of children born with cystic fibrosis in 1990 will be 40 years (Hodson, 1995). The clinical features of the condition, the prognosis, and the intensive nature of medical care programmes for cystic fibrosis are a source of considerable stress for both patients and their families (Lask, 1995). Counselling focuses on helping patients and families deal with the psychological problems associated with adjustment to the illness and its management.

The provision of medical care and counselling for patients with cystic fibrosis and their families is potentially stressful for staff who provide such specialist care. Lewiston, Conley & Blessing-Moore (1981) in a comparative study of stress responses found that cystic fibrosis caregivers displayed a higher

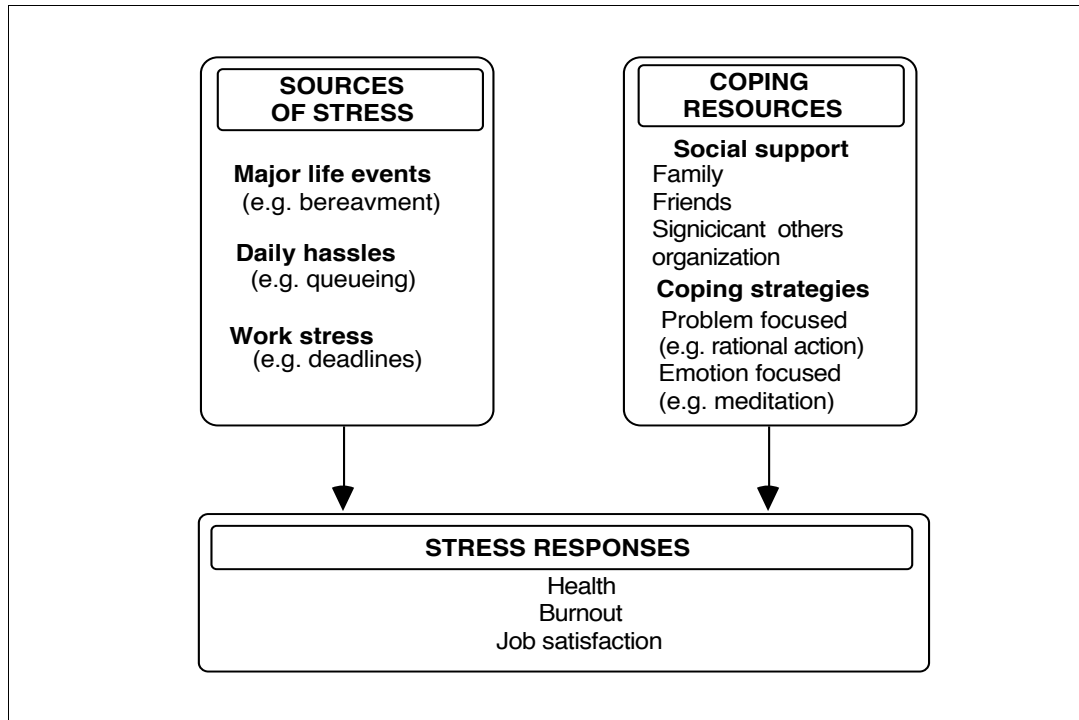
level of emotional exhaustion than controls. Coady, Kent & Davis (1990) in a national US study of CF staff found that greater stress responses were evident in those working for longer hours, both with patients who had cystic fibrosis, but also with other chronically ill patient populations.

Stress arises when the individual perceives a discrepancy, between the demands of a situation and the resources of the person's biological, psychological, or social systems (Sarafino, 1994). It is useful to distinguish between sources of stress (or stressors) and stress responses. The latter include symptoms such as headaches or fatigue, poor job satisfaction and burnout. The former refers to daily pressures both inside and outside of the work environment and also to major life events such as personal bereavement. Stress response levels are determined not only by the stressors to which people are exposed but also by the coping strategies used and coping resources available, particularly social support. Coping strategies include such activities as engaging in physical exercise or using problem solving skills (Lazarus & Folkman, 1984). This conceptualization of stress is diagrammed in Figure 9.1.

The broader literature on occupational stress and the literature on palliative care supports the general model presented in Figure 9.1 (Vachon, 1995). However, the relative importance of the various categories of stressors and coping resources in accounting for variance in stress response levels remains undocumented for staff working within the context of a cystic fibrosis care team.

The principal aim of this study was to profile staff experiencing high and low levels of stress responses in terms of sources of stress, coping strategies and levels of perceived social support. A second aim was to identify those stressors and coping resources which accounted for significant proportions of the variance in stress response levels.

Figure 9.1. A Model of the Stress and Coping Process.



## METHOD

### Participants

All multidisciplinary team staff members in each of eight cystic fibrosis speciality centres in Ireland were surveyed. Multidisciplinary teams included members from a variety of disciplines including medicine, nursing, physiotherapy, social work and psychology. A total number of 120 people were identified as suitable for inclusion in the study and 56 of these responded yielding a response rate of 46.6%.

## **Instruments**

The following instruments, which assess the variables contained in the model set out in Figure 9.1, were used in the study.

**The Social Readjustment Rating Scale.** This 43 item scale, which yields a single score, assesses stress associated with life events (Holmes & Rahe 1967). Items are weighted in terms of life-change-units from 100 for death of a spouse to 11 for minor violations of the law. A participant's overall score is the sum of the weights for those items that have occurred in the preceding 6 months. High scores on this scale reflect a high level of life-event related stress. A substantial body of evidence confirms that scores on this scale correlate with a variety of stress responses and stress related illness (Sarafino, 1994).

**Daily Hassles and Uplifts Scale.** This was used to assess daily life stress both within and outside of the work environment (Lazarus & Folkman, 1989). This 53 item scale lists minor stressful events that occur on a day to day basis as well as daily events people find supportive. Each item is scored as being either a hassle or an uplift and the intensity of stress or support is rated on a 4-point scale for each item. For this study only the hassles score was used. High scores on the hassles subscale reflect exposure to a high level of daily stressors. A test-retest reliability of .75 is reported in the manual and the hassles and uplifts scale correlates with other measures of daily stressors and stress responses.

**Work Stress Scale.** This scale was adapted from McCarthy and Tiernan's (1987) Stress and Nursing scale. It includes 41 items concerning various aspects of patient care such as patient contact; contact with relatives; managing patient mortality; working in a hospital environment; using health care equipment; and

working on a multidisciplinary team. All items are rated on 5-point scales. High scores reflect exposure to high levels of work related stressors. An alpha of .94 was obtained indicating that the scale has an acceptable level of internal consistency reliability.

**General Health Questionnaire.** This 28 item questionnaire, the GHQ-28, inquires about various aspects of physical and mental health and so assesses stress responses in the health domain (Goldberg, 1978). It yields an overall score in addition to four subscale scores, which indicate the respondent's status with respect to somatic symptoms, anxiety, social dysfunction and depression. Four-point response formats were used for each item. The 0,0,1,1 scoring method was used to obtain total and subscale scores. Scores were based on item totals. Norms for the general population are available for this scale and respondents who obtain a score of 5 or greater fall into the clinical range and high scores are associated with negative adjustment. Epidemiological studies have shown that such cases typically receive a diagnosis for a psychological disorder if interviewed in a standardized manner by a trained research mental health professional (Goldberg, 1978). There are extensive data to support the reliability and validity of the GHQ-28.

**Burnout and Satisfaction Scale.** Staff stress responses in the areas of burnout and job satisfaction were assessed with this scale adapted from Ferrari, Mc Cowan, & Pantano, (1993) AIDS Caregiver Scale. The scale contains 14 items, 7 of which assess job satisfaction and 7 of which assess burnout. Three point response formats are used for all items. The scale is scored so that higher scores on the overall scale and both subscales indicate more positive adjustment. The alpha coefficients obtained for the overall scale and subscales indicated that they had an acceptable level of internal consistency reliability. The overall alpha for

the scale was .75. For the satisfaction and burnout subscale the alpha coefficients were .74 and .69 respectively.

**Multidimensional Scale of Perceived Social Support.** This 12 item scale yields an overall score and scores on three subscales that assess social support from family, friends, and significant others. Responses to items are given on 7 point Likert scales with high scores reflecting greater support. Alpha internal consistency reliability coefficients for the overall scale and three subscales above .8 have been obtained in both the present study and in other studies along with evidence for criterion validity (Dahlem, Zimet & Walker, 1991).

**Perceived Organisational Support.** This a 36-item scale assesses staff perceptions of organisational support. Responses to items are given on 7 point Likert scales with high scores reflecting greater support (Eisenberger and Huntington, 1986). An alpha of .86 was obtained in this study indicating that the scale has an acceptable level of internal consistency reliability.

**Revised Ways of Coping Questionnaire.** This 67- item scale provides scores on the following coping strategy subscales: rational action, fantasised action, anticipated action, seeking professional aid, avoidance of stress, expressing emotional response, and meditation. Responses to items are given on 3 point scales with high scores reflecting greater use of that coping strategy. It is a modified version of Lazarus Ways of Coping Scale (Lazarus & Folkman, 1984). Internal reliability and criterion validity of an acceptable level have been reported for this scale (Chiriboga, Jenkins, & Bailey, 1983).

A questionnaire which included items on demographic characteristics was also completed by respondents.

## **Procedure**

Questionnaires were sent to the cystic fibrosis nurse specialists in each of the eight Irish cystic fibrosis centres for distribution to multidisciplinary team members. A covering note was attached to each questionnaire describing the aims of the study, guaranteeing confidentiality and indicating the closing date for returning questionnaires to the nurse specialist. Each of the eight nurse specialists returned their team's questionnaires to the authors.

## RESULTS

### Demographic characteristics

The mean age of the 56 respondents was 34 years and 3 months (standard deviation =7.21). Ages ranged from 22 to 56 years. Ninety percent of respondents were female. The mean number of years working in cystic fibrosis was 6 years and 8 months (standard deviation=4.9).

### Profiles of high and low stress groups.

On the GHQ-28 the mean for the whole sample was 2.04 (standard deviation=3.15). Twelve respondents (21%) scored at or above the cut-off point of 5, indicating that just over a fifth of respondents were experiencing clinically significant levels of psychological symptomatology. These 12 cases will be referred to as the high stress group and the remaining 44 respondents whose scores on the GHQ-28 fell below the clinical cut-off point of 5 will be referred to as the low stress group.

**Table 9.1. Status of high and low stress response groups on demographic variables**

Variable		High stress response group (N=12)	Low stress response group (N=44)	
Age	M	27.9 y	36.0y	t = 4.05*
	SD	4.37	9.5y	
Number of years working with Cystic Fibrosis	M	5.4y	7.3y	t =1.33 ns
	SD	3.8y	5.8y	
Gender	Females	12	35	Chi=1.66 ns
	Males	0	5	

\*p<.05. ns=not significant.

The status of high and low stress groups on demographic variables is presented in Table 9.1. From the table it is clear that the high stress group were significantly younger than the low stress group. However the groups did not differ significantly in terms of years of experience or gender distribution.

In Table 9.2 the status of the high and low stress groups on scales measuring sources of stress and stress responses are presented. Only scales on which the two groups differed significantly are included in the table. From this table it is evident that the high stress group obtained higher scores on the social readjustment rating scale, the daily hassles and uplifts scale and the work stress scale. Thus the high stress group reported having been exposed to a greater number of life event stressors in the preceding six months, a greater amount of daily stress within and outside work and a greater number of work related stressors.

**Table 9.2. Status of high and low stress response groups on those psychosocial scales on which they differed.**

Domain	Variable		High stress Response group (N=12)	Low stress response group (N=44)	t
<b>Sources of stress</b>	Life events	M	267.00	136.16	3.22**
		SD	129.36	106.13	
	Daily Hassles	M	56.33	30.36	3.47**
		SD	24.42	16.84	
	Work Stress	M	2.38	1.85	3.12**
		SD	0.43	0.66	
<b>Stress responses</b>	Somatic Symptoms	M	2.41	0.25	5.54**
		SD	1.33	0.65	
	Anxiety Symptoms	M	3.50	0.38	5.86**
		SD	1.78	0.87	

Social Symptoms	M	0.75	0.05	3.20**
	SD	0.75	0.21	
CF related burnout	M	4.79	5.51	2.55**
	SD	0.90	0.67	

**Note:** The high stress group obtained a GHQ total score at or above the conservative cut-off point of 5. Members of the low stress group obtained scores below 5 on the GHQ. \*\* $p < .01$  for a one tailed test

From Table 9.2 it is also apparent that the high stress group obtained significantly higher scores on the somatic symptoms, anxiety symptoms and social dysfunction symptoms subscales of the GHQ-28. This group also obtained a burnout score which differed significantly from that of the low stress group and in this area showed greater stress response.

The high and low stress groups did not differ significantly on the other indices of stress responses or on the coping strategy subscales.

### Factors predictive of stress responses

To identify which set of variables assessing sources of stress, social support and coping strategies best predicted stress responses, a two stepwise multiple regression analyses were conducted: one for the overall GHQ-28 score and one for the overall burnout and job satisfaction scale score. In each of these analyses scores on the scales which assessed sources of stress, social support and coping strategies were entered as independent or predictor variables. The results of these eight stepwise multiple regression analyses are presented in Table 9.3.

**Table 9.3. Factors which predict stress responses identified in multiple regression analyses.**

Dependent variable (indices of stress responses)	Number of Steps in regression	Predictive Factors (independent Variables)	Adjusted R2 at each step	F at each step	df at each step	p
Overall general health	2	Daily Hassles	.32	14.30	1,27	.0008
		Life Events	.44	11.94	2, 26	.0002

Total Burnout & job- satisfaction	1	Social Support from Family	.21	8.03	1,25	.009
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From Table 9.3 it may be concluded that 44% of the variance in total GHQ scores was accounted for by scores on the daily hassles and life events scales and 21% of the variance in burnout and job satisfaction scores was accounted for by the family social support score from the MPSSS.

## DISCUSSION

Before considering the implications of the substantive results of this study, its methodological shortcomings deserve some mention. The most notable shortcoming is the fact that there was a non-response rate of 53.4%. Thus the group for which data were available constituted just under half of the total population of professionals involved in caring for CF patients in the Republic of Ireland. To preserve respondents' anonymity working with such a small overall population of 120, a question was not included in the survey about the respondents' profession. Because of this it is not possible to determine which professions were over represented among respondents. Neither was it possible to determine demographic differences between responders and non-responders. The degree to which responders are representative of the overall population being studied cannot therefore be determined. On the other hand, it is important to emphasize the 56 respondents constitute almost half of the *entire population* (not half of a sample) of CF specialist health-care professionals in the Republic of Ireland. To obtain full data sets from almost 50% of an entire population, despite the lack of information about representativeness, allows a moderate degree of confidence to be placed in the results (Moser & Kalton, 1975).

A fifth of respondents were clearly identifiable as experiencing clinically significant stress responses. This high stress group had a distinct profile in comparison with the other respondents. They were younger and reported more somatic symptoms, more anxiety symptoms, more social problems and more burnout than other respondents. They also reported being exposed to more life event stressors in the preceding 6 months and more daily stressors both within and outside the work environment.

Within the group as a whole certain factors were identified as being significant predictors of stress responses. Life event stressors in the preceding six months and an accumulation of minor daily stressors together were predictive of stress responses as reflected in overall mental health. The availability of social support from professional's families was associated with greater job satisfaction and lower burnout.

In comparing the results of this study with the wider literature, two questions are of particular concern. The first is their comparability to GHQ studies of the general population and the second is their comparability to studies of health care professionals. Cox, Blaxter, Buckle, et al. (1987) in a UK national survey of a sample of over 6000 members of the general population found that 32% of cases scored above a cut-off of 5 on the GHQ 30 and 27% of those who were classified as professionals between 18 and 64 years scored above the cut-off of 5. While this study employed the GHQ 30 rather than the GHQ-28, they have been shown to yield similar results when used as screening instruments therefore it is valid to compare these results with those of the present study. From such a comparison it may be concluded that the CF health care professionals surveyed in this study contained a lower proportion of cases falling above the clinical cut-off. Significant relationships between GHQ scores and stress have been found in a number of general population studies. For example, Tennant and Andrews (1978) found a correlation of .27 between negative life events and GHQ-12 scores in a community survey of a sample of over 800 in Australia.

The results of the study reported in this paper are consistent with those reported in other studies which address the stress experiences of staff working with patients suffering from cystic fibrosis (e.g. Coady et al, 1990). However, they also add to our knowledge in this area by showing that stressful life events and daily hassles have a significant association with general health whereas social support for the family is the most significant predictor of burnout.

This study points to the need for making staff support programmes available to CF health care staff experiencing stress related health concerns and burnout. A study evaluating such a support programme is currently being planned.

## **SUMMARY**

A fifth of respondents in this study of 56 staff from major national cystic fibrosis treatment centres in the Republic of Ireland obtained clinically significant scores on the GHQ-28. This high stress group had a distinct profile in comparison with the other respondents. They were younger and reported more somatic symptoms, more anxiety symptoms, more social problems and more burnout than other respondents. They also reported being exposed to more life event stressors in the preceding six months and more daily stressors both within and outside the work environment. Within the group as a whole, multiple regression analyses showed that certain factors were significant predictors of general health and burnout. Life event stressors in the preceding six months combined with an accumulation of minor daily stressors together were predictive of poorer general health. The availability of social support was associated with lower burnout.

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