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A comparative study on attitudes, mental health and job stress amongst GPs participating, or not, in a rural out-of-hours co-operative

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Objectives. To test the study hypothesis that GPs participating in co-operatives will have more positive attitudes towards co-operatives, better mental health and less stress than GPs using traditional out-of-hours arrangements.

Methods. A comparative questionnaire study was conducted amongst GPs, participating, or not, in an out-of-hours, largely rural, co-operative ('NoWDOC') which had been established one year previously. The general attitudes of GPs towards out-of-hours work were obtained together with responses to the General Health Questionnaire-12 (mental health) and Stress Arousal Checklist (job stress).

Results. Eighty-nine of 120 eligible practitioners responded (74%). The mean GHQ scores for GPs in NoWDOC was 10.2 [standard deviation (SD) 3.9] compared to a score of 11.3 (SD 4.5) for those not participating ($t = -1.18$; $P = 0.24$). The overall mean stress score for members of NoWDOC was 3.8 (SD 2.6) compared to 3.4 (SD 2.7) for non-NoWDOC ($t = 0.59$; $P = 0.55$). The overall mean arousal score for NoWDOC GPs was 5.2 (SD 2.0) compared to 5.5 (SD 2.9) for non-NoWDOC GPs ($t = -0.68$; $P = 0.50$). Multiple regression analyses suggested that the independent variables (partnership arrangements, age, working hours and membership of NoWDOC) did not account for any of the variability in the GHQ score but a significant amount of variability in stress and arousal scores.

Conclusions. The anticipated differences in mental health and job stress among participating GPs were not shown. As the new generation of GPs resemble the NoWDOC participants in their preferences for multi-partner practices with limited out-of-hours care provision, clarification of these findings is important.

Keywords. Out-of-hours, co-operatives, rural, stress.

Introduction

The exponential growth of general practice co-operatives has dramatically changed the provision of out-of-hours care in many health systems.[1–5] This growth has been driven, in part, by the clear preference of many GPs for co-operatives over previous out-of-hours arrangements. Co-operatives are generally considered to have significant benefits for practitioners' personal and professional lives.[6–8]

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Little research has however been conducted to confirm the decrease in stress and improvement in mental health anticipated with the introduction of co-operatives. Heaney[2] in 1995 and 1996 compared stress and arousal levels within a group of twenty-three Scottish GPs before and one year after the introduction of a co-operative. GPs reported significantly lower stress and higher arousal scores with the new service. Fletcher[9] in 1995 and 1998 utilised the SF-36 to establish the health status of 130 GPs before and three years after the establishment of three co-operatives in Buckinghamshire. Significant improvements in all domains except pain and physical function were found. Both reports were simple 'before and after' observational studies with response rates of 61 and 63% respectively. They were also conducted when co-operatives were establishing themselves as the main provider system of out-of-hours care.

The aim of this study was therefore to perform a comparative study, within the same region, of the attitudes, mental health and job stress of GPs, participating or not, in a general practice co-operative one year after its introduction. Our hypothesis was that participating GPs would have more positive attitudes towards co-operatives, better mental health and less stress.

Methods

Participants

This study was based in the North Western Health Board (NWHB) region of Ireland. The Board covers an area of 2600 square miles and is responsible for providing health care to a largely rural population of 221 376. NoWDOC co-operative (North Western Association of Doctors on Call) was established on 26 September 2001. One of the authors (PA) was a founding member of the co-operative. It was the third co-operative to be formed in Ireland and by this time co-operatives were, for the Department of Health and Children[10] and the profession,[11] well established as the preferred out-of-hours system.

There are 125 GPs in established practice in the area of the NWHB. GPs in the northern area (59 in total) originally approached the NWHB requesting support to establish NoWDOC which was then provided. This working situation has remained the same since NoWDOC inception with 59 GPs participating in NoWDOC and 66 continuing to work in traditional rotas. The arrangements for the non-NoWDOC group vary from a 1 in 2 to a 1 in 8 rotas, with some using locums extensively and others not at all. The NoWDOC and non-NoWDOC groups therefore are representative of Irish practitioners participating, or not, in co-operatives.

The names and addresses of all GPs were obtained from the NWHB database and then checked by PA. GPs who, at the time of the study, were on prolonged absence from work due to sick, maternity or compassionate leave were excluded. Eligible GPs were then invited to take part in the study. Ethical approval was obtained from the ethical committee of the Irish College of General Practitioners.

Design

A questionnaire based on previous similar studies was developed and then piloted among a group of GPs in a neighbouring health board (Western Health Board). In response to piloting, a number of questions were then rephrased.

Demographic information was obtained together with the general attitudes of practitioners towards out-of-hours work on a five point Likert scale. The following measures were also included (with short descriptions):

(a) The General Health Questionnaire (GHQ-12) is a recognised and validated tool for assessment of mental health with higher scores indicating a greater probability of clinical disorder.[12] Likert scoring (of 0, 1, 2 and 3) was used as this method gives a less skewed distribution of scores, ranging from 0 to 36, in comparison to the alternative method which produces a score of 0 to 12.

(b) The Stress Arousal Checklist (SACL) is a validated tool for measuring stress and arousal levels. It has been used in a number of contexts, including general practice.[2,13,14] It consists of twenty-five adjectives which describe feelings and moods; respondents indicate on a four point scale how accurately each adjective matches their current state. The adjectives belonged to distinct categories: stressors or arousers both of which could be either positive (e.g. nervous, stimulated) or negative (e.g. peaceful, sluggish) respectively. The range of scores is 0 to 14 for stress and 0 to 11 for arousal.

An initial information leaflet was sent to all participating GPs. Each GP in the two study groups then received identical self-administered questionnaires accompanied by a cover letter from PA. Each GP was assigned a unique identification number; should they so wish, they could remove this number to ensure complete confidentiality. The GPs were requested to complete the questionnaire during one specified working week (commencing 14 October 2002). During this week, the SACL measure was completed at the end of each working day. For each day doctors were asked to indicate whether they had been on call the night before or whether they were about to go on call. The mean overall stress and arousal scores were calculated for each of the two groups over the five working days. The GHQ was completed once only at the start of the study.

The questionnaires were returned in a prepaid addressed envelope. A reminder letter with a further questionnaire was sent to non-responders a fortnight later.

Analysis

The data were analysed in SPSS for Windows (version 11) and double checked. Data obtained from the 'attitudes' section of the questionnaire was analysed to produce descriptive statistics; those answering affirmatively (i.e. strongly agree or agree) were compared to those answering negatively (i.e. strongly disagree or disagree). The GHQ-12 and SACL scores for the two groups of GPs were compared using the Independent *t*-test. Multiple regression analyses were performed to evaluate how well the independent variables (partnership arrangements, age, working hours and membership of NoWDOC) predicted the independent variables of the GHQ-12 and SACL stress and arousal scores.

Results

Five GPs (two participating in NoWDOC and three who were not) were excluded from the study due to

prolonged absence from work. One hundred and twenty GPs were therefore eligible to participate in the study.

Eighty-nine completed and returned the questionnaire (74% response rate). More NoWDOC participants returned their questionnaire than non-NoWDOC: 51/57 (89%) NoWDOC participants compared to 38/63 (60%) non-NoWDOC (chi-squread 13.2; $P < 0.01$). Six respondents removed the unique identifying number to ensure complete confidentiality (four from NoWDOC).

Sixty-four (72%) of the responders were men; proportions were similar, 71% for NoWDOC and 74% for non-NoWDOC. The mean age of the responders was 46.5 years; NoWDOC responders were significantly younger (45 years) than non-NoWDOC participants (49 years) (2.38; $P < 0.05$). Table 1 illustrates the marital status and type of practice for GPs, participating or not, in NoWDOC. Non-NoWDOC practitioners, compared to NoWDOC practitioners, were more likely to work in a single handed practice (chi-squread 5.3; $P < 0.05$).

The mean distance to the nearest Accident and Emergency Department (A&E) was twenty miles (SD 13.6). There was no significant difference between the two groups: 21.4 miles (SD 14) for NoWDOC and 18.2 miles (SD 12.9) for non-NoWDOC ($t = 1.1$; $P = 0.28$). The amount of out-of-hours care provided by the GPs is shown in Table 2. The GPs also recorded each day how many hours they worked during the study week. NoWDOC GPs worked significantly fewer hours per day during a five day working week than non-NoWDOC GPs (8.9 and 12.5 hours respectively; $t = 5$, $P < 0.01$).

Participating GPs in NoWDOC were therefore, in comparison to colleagues who were not participating, younger and working significantly less hours per day in practices which had more partners.

Table 3 illustrates the attitudes of GPs towards the provision of out-of-hours care. GPs in NoWDOC showed, in comparison to colleagues who were not participating, greater rates of satisfaction with co-operatives in terms of quality of care and efficiency of service for the GP. GPs in NoWDOC were more likely to believe that patient demands for out-of-hours care were increasing and less likely to be frustrated in making 'inappropriate' out-of-hours home visits.

The mean GHQ scores for GPs participating in NoWDOC was 10.2 (SD 3.9) compared to a score of 11.3 (SD 4.5) for those GPs not participating in NoWDOC ($t = -1.18$; $P = 0.24$).

The SACL was completed for 266 of the possible 360 days (73.8%). The overall mean stress score for members of NoWDOC was 3.8 (SD 2.6) compared to 3.4 (SD 2.7) for non-NoWDOC GPs ($t = 0.59$; $P = 0.55$). The overall mean arousal score for NoWDOC GPs was 5.2 (SD 2.0) compared to 5.5 (SD 2.9) for non-NoWDOC GPs ($t = -0.68$; $P = 0.50$).

The mean stress score for NoWDOC GPs on a 'clear day' (i.e. those days when there had been no call the night before) was 3.9 (SD 2.8) compared to 3.4 (SD 2.6) for non-NoWDOC GPs ($t = 0.66$; $P = 0.50$). The equivalent mean arousal scores on a 'clear day' were respectively 5.2 (SD 2.0) and 5.4 (SD 3.2) ($t = -0.33$; $P = 0.70$).

The mean stress score for days following a night on call for NoWDOC GPs was 4.0 (SD 3.8) as compared to 3.2 (SD 3.6) for non-NoWDOC GPs ($t = 0.76$; $P = 0.45$). The mean arousal scores for days following a night on call

TABLE 1 *Marital status and type of practice of GPs*

Variable	NoWDOC GPs *n* (%)	Non-NoWDOC GPs *n* (%)
Marital status[a]		
Married	44 (86.3)	36 (94.7)
Separated	2 (3.9)	0
Living with partner	2 (3.9)	0
Single/never married	3 (5.9)	2 (5.3)
Type of practice[b]		
Single handed	9 (17.6)	15 (39.5)
Principal with assistant(s)	7 (13.7)	4 (10.5)
Group practice of at least 2 partners	15 (29.4)	7 (18.4)
Group practice of at least 3 partners	12 (23.5)	6 (15.8)
Group practice of 4+ partners	8 (15.7)	6 (15.8)

[a] NoWDOC status not provided for 2 GPs.
[b] NoWDOC status not provided for 1 GP.

TABLE 2 *Out-of-hours cover by GPs in the North Western Health Board (shift/rota as applicable)*

	NoWDOC GPs *n* (%)	Non-NoWDOC GPs *n* (%)
Amount of shifts per month		
0	1 (2)	
1	2 (3.9)	
2	11 (21.6)	
4	12 (23.5)	
4	10 (19.6)	
5	10 (19.6)	
6	3 (5.9)	
Not classified	2	
Average weekday rota in previous three months		
1 in 1		1 (2.6)
1 in 2–3		11 (28.9)
1 in 4–6		21 (55.3)
1 in 7–10		3 (7.9)
None		2 (5.3)
Not classified		2
Average week-end rota in previous three months		
1 in 1		0 (0)
1 in 2–3		11 (28.9)
1 in 46		15 (39.5)
1 in 7–10		5 (13.2)
None		7 (18.4)
Not classified		2

TABLE 3 *Responses of GPs to general questions on attitudes to out-of-hours care*

Dimensions	NoWDOC GPs *n* (%)	Non-NoWDOC GPs *n* (%)
Co-operative issues		
Co-operatives provide high quality care		
Affirmative	47 (92.2)	17 (48.6)
Negative	1 (2)	4 (11.4)
Don't know/ambivalent	3 (5.9)	14 (40)
Chi square (*P* value)	20.7 (<0.01)	
Co-operatives provide an efficient service for the GP		
Affirmative	47 (92.2)	21 (60)
Negative	0 (0)	1 (2.9)
Don't know/ambivalent	4 (7.8)	13 (37.1)
Chi square (*P* value)	13.0 (<0.01)	
Issues in the provision of patient care		
Patients' demands for out-of-hours care is increasing		
Affirmative	39 (76.5)	12 (31.6)
Negative	6 (11.8)	23 (60.5)
Don't know/ambivalent	6 (11.8)	3 (7.9)
Chi square (*P* value)	23.87 (<0.01)	
Frustrating to make 'inappropriate' home visits out-of-hours		
Affirmative	30 (58.8)	32 (84.2)
Negative	5 (9.8)	4 (10.5)
Don't know/ambivalent	16 (31.4)	2 (5.3)
Chi square (*P* value)	9.4 (<0.01)	
Personal provider issues		
Home life interrupted by patients calling to door without prior appointment		
Affirmative	1 (2)	1 (2.6)
Negative	45 (90)	27 (71.1)
Don't know/ambivalent	4 (8)	10 (26.3)
Chi square (*P* value)	5.54 (0.06)	
Home life interrupted by telephone calls from patient		
Affirmative	1 (2)	4 (10.5)
Negative	1 (82)	15 (39.5)
Don't know/ambivalent	8 (16)	19 (50)
Chi square (*P* value)	17.03 (<0.01)	

for NoWDOC GPs was 3.5 (SD 3.5) as compared to 5.6 (SD 3.5) for non-NoWDOC GPs ($t = -2.06$; $P = 0.045$).

Utilising multiple regression analyses the independent variables did not account for any of the variability in the GHQ score ($F [4, 74] = 0.736$; $P = 0.57$). The independent variables accounted for a significant amount of variability in the average stress ($F [4, 75] = 3.90$; $P = 0.006$) and arousal scores ($F [4, 74] = 2.56$; $P = 0.046$). An examination of the beta weights associated with the predictors revealed that age ($\beta = -0.405$; $P < 0.001$) was independently predictive of overall stress scores.

Eighty-five of 89 respondents (96%) indicated their willingness to participate in further related studies.

Discussion

This study with 89 participants can be considered relatively small but is equivalent to other similar studies.[2,15] The response rate of 74% is satisfactory and the findings can be considered generalisable to other largely rural areas. The significantly higher response rate from NoWDOC participants may highlight their personal investment in supporting the new out-of-hours service. The non-responders from the non-NoWDOC group are an important group whose attitudes, mental health and job stress remain uncertain.

Interpretation of a cross sectional study of the NoWDOC and non-NoWDOC participants, who differ in age and work practices, must be performed cautiously. Nevertheless such an approach represents a pragmatic analysis of how such new service initiatives are actually implemented in practice. Our research hypothesis that participating GPs would have more positive attitudes towards co-operatives was supported (Table 3). Bain[15] also noted that co-operatives improved relationships between local GPs. These more positive attitudes may be due to the experience of participating within a co-operative or may reflect the core values of the GPs themselves. Non-NoWDOC GPs being older, more likely to be in single handed practice and working longer hours may have a lower disposition to collaborative working.

The anticipated differences in mental health and job stress among participating GPs were not shown. Indeed the trends in both the GHQ and SACL measures whilst not significant, were in the opposite direction to what was expected. These study instruments have proven international validity and reliability within general practice.[2,13,14,16] It is possible, however, that they may not have been sensitive enough to pick up subtle changes in the current sample. Self-reported ratings of morale and stress (data available from authors) are similar to those previously reported from Ireland[17] which are higher and lower respectively than equivalent figures from the UK[17] and New Zealand.[16]

Salisbury[8] referred to 'honeymoon enthusiasm' for the introduction of co-operatives which previous work may have highlighted.[2,9,15] Our results may reflect that whilst co-operatives may decrease the absolute amount of time on call, the associated levels of stress may be as high. The challenge of repeatedly managing high volumes of unfamiliar sick patients in different centres is a significant one.

Karesek[18] classified general practice as a profession with high demand and high decision latitude. We[19] and others[20] have reported in qualitative work that, as perceived by rural GPs themselves, their autonomy in decision making has been much reduced with resultant stress. This study suggests that the assumption that stress will be decreased by replacing regular low volume rota on-call commitments with less frequent but high volume co-operative sessions, may be simplistic. As recent

graduates of vocational training schemes resemble the NoWDOC participants in their preferences for multi-partner practices with limited out-of-hours care provision,[21,22] clarification of our findings is important.

This may be performed through complementary qualitative analysis, to examine in more detail participants experience of a co-operative scheme. Such research needs to be replicated in other geographical areas and, where possible, data should be gathered before and after practitioners join the co-operative scheme. Finally, it would be interesting to follow up the present sample to monitor changes in attitudes, stress levels and mental health over time.

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Declaration

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Ethical approval: Ethical approval was obtained from the ethical committee of the Irish College of General Practitioners.
Conflicts of interest: none.

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