

An occupational survey of hospital pharmacists in the South of England

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AIM • To measure the occupational satisfaction of pharmacists practising in NHS hospitals and to examine potential contributory demographic factors.

DESIGN • Postal questionnaire consisting of Likert scale response items pertaining to general and specific aspects of daily work and career, and a section on personal and employment details.

SUBJECTS AND SETTING • Hospital pharmacists practising in two regions in the south of England. Questionnaires were sent to a total of 1,264 pharmacists (49% response).

RESULTS • The questionnaire was validated for a UK sample of hospital pharmacists using factor analysis and reliability tests. A total of 12 factors were extracted per-

taining to general and specific aspects of job and career satisfaction. All factors exhibited good internal reliability. Standardised factor scores highlighted that junior grade pharmacists (grades A to C) are significantly less satisfied than the higher grades of D and above in many aspects related to daily work. Of the sample surveyed, 75% were female. Within both male and female groups there was a higher percentage of men in senior grade posts than women when contrasted with junior grades.

CONCLUSIONS • Junior grade pharmacists have been shown to be the least satisfied with respect to job, career and other related aspects of work. Reasons for this finding are unclear from this quantitative survey. However, several major areas of concern are highlighted enabling pharmacy managers to address the problem of recruitment and retention.

Recruiting and retaining sufficient hospital pharmacists in the National Health Service is a growing problem. A survey carried out in 1998 reported that 13 per cent of hospital pharmacist posts were unfilled.¹ Two of the main contributing factors identified were pay and lack of training. However, many of the studies undertaken in this area originate in the United States, and the literature for United Kingdom samples of hospital pharmacists is sparse. The North American literature has reported factors such as recognition of staff, opportunities for promotion, management style, peer relations and job satisfaction as affecting the retention of pharmacists.^{2,3} In addition, studies indicate that practitioners become more satisfied with their jobs as their time spent undertaking activities directly related to patient care increases.^{4,5}

Surveys of this nature are usually conducted by mail and employ either facet-free or facet-specific items, or both.⁶ Facet-specific items are statements that are designed to measure satisfaction with specific aspects of a job, such as autonomy, supervision and working conditions. Facet-free items are statements that are designed to measure the global satisfaction with a job.

Items used in survey instruments are normally derived from appropriate literature reviews, standardised instruments or items used in previous related research. Although many studies have generated their instruments in this way, few have validated them for the sample surveyed.^{6,7}

In 1986, Barnett and Kimberlin published an instrument designed to measure the job and career satisfaction of pharmacists practising in Florida.⁸ The question-

naire contained facet specific items to measure specific variables such as autonomy and supervision. It also contained facet-free items to measure the variables of job and career satisfaction. An item pool relating to these variables was selected from standardised measures of job satisfaction including the job descriptive index, job characteristic inventory and modified forms used by other researchers. The selected items were reviewed by a panel of experts in pharmacy, psychology and sociology, and the questionnaire was validated and found to exhibit good internal reliability for the sample of Florida pharmacists.

Although factors affecting a pharmacist's job and career are important in recruitment and retention, so are the issues surrounding the demographics of the pharmacy workforce. The current population of hospital pharmacists in the UK is predominantly female. Issues found to affect female pharmacists have included the availability of career opportunities, the provision of flexible working hours and the availability of interesting jobs.⁹ Studies have shown their work patterns are influenced by starting a

family and caring for children.^{10,11} These studies have also shown that after starting a family, women tend to return to pharmacy on a part-time basis; they were, however, conducted more than 10 years ago and may have less validity through the passage of time.

By understanding trends in the current workforce of hospital pharmacists and employee satisfaction, a strategy to improve recruitment and retention can be developed.

This paper presents the results of an occupational survey of hospital pharmacists working for the NHS in the South of England. The questionnaire used in this survey represented a modified version of the instrument used by Barnett and Kimberlin. This paper also presents the validation of the modified questionnaire for a UK population of hospital pharmacists.

METHOD

The Barnett and Kimberlin questionnaire was modified with selected items rephrased, making the instrument more suitable for a UK population of hospital pharmacists. An extra section relating to education and training, comprising 10 items, was added to the modified questionnaire to determine the likely influence of the opportunity provided for training and postgraduate education on job satisfaction. Responses to items used a five point Likert scale, ranging from "strongly agree" to "strongly disagree".

A pilot study using 15 pharmacists was carried out leading to minor rephrasing of some items. The final modified questionnaire contained a section pertaining to the respondent's personal and employment details and a total of 79 response items. The

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survey was conducted in 1998 in two regions within the South of England, as two separate arms. All NHS hospital trusts in these regions were included.

Questionnaires were sent to a nominated contact person within each trust for distribution. Each questionnaire was supplied with an addressed return envelope and a covering letter explaining the background to the study and assuring confidentiality and anonymity. The questionnaires were coded to denote a region and a particular hospital trust to allow comparisons between hospital size and geographical location. A letter addressed to the senior pharmacy manager of each hospital trust was sent, requesting information about the size of the trust with respect to the number of beds and staff. Letters requesting the return of questionnaires were sent out a month later as a follow-up to non-responders. A total of 1,264 questionnaires were distributed.

Data from completed questionnaires were entered manually on to the statistical package for social sciences, (SPSS 7.5 for Windows).¹² For quality assurance, item frequency tables were examined for unusual coding values. In addition, 24 randomly selected questionnaires were also examined for discrepancies between responses given and entered as data case rows. This number represented the square root of the returned sample. No mismatches were found, indicating confidence in the accuracy of coding and data entry.

The modified questionnaire was analysed and validated using exploratory factor analysis. The item frequencies were examined to highlight those with a high or a uniform response at one scale end or those with a high proportion of "neither agree nor disagree" responses. These inappropriate items were reviewed and excluded from further factor analysis. Item exclusion was confirmed by a second assessor and a total of 13 items was excluded. Factor analysis was conducted to condense the remaining 66 items into first order factors.

An initial examination of the item correlation matrix indicated that over half of the correlations were significant at the $P=0.01$

level (2-tailed test). This suggested that the items were likely to contribute towards common factors and that it was appropriate to proceed with factor extraction using principal component analysis (PCA). Examination of scree plots of the extracted factors and Kaiser's criterion was used to retain important factors. The resulting factor matrix was subject to orthogonal rotation and factor identification. A total of 12 factors was extracted (Table 1). Coefficient alpha was calculated for each extracted factor and used for factor description and diagnosis. All factors exhibited good internal reliability, with alpha values ranging between 0.62 and 0.87 (Table 1). Examination of the resulting factor scores showed that scores for factor one to eleven followed normal distributions. The distribution for factor 12 was uniform. A factor score is the summation of responses to items within a factor. High scores are indicative of greater agreement or support with the factor description.

RESULTS

A total of 623 questionnaires were returned, representing a 49 per cent response.

Results of the demographic data are reported as percentages, accounting for any missing values. Table 2 shows the distribution of gender and grade within the sample. Gender proportions were validated by secondary data, obtained from the Royal Pharmaceutical Society, of currently registered hospital pharmacists in the United Kingdom. The proportion of responses from different grades was validated using the number of nationally available whole time equivalent posts for each grade from a previously published survey.¹ These demographic comparisons suggest the data are representative of the hospital pharmacy population.

Examination of the distribution of grade within the male and female sub-samples showed that 44.4 per cent (67/151) of men were in senior posts (grade E and above) compared with 21.3 per cent (98/460) of women (Figure 1).

A total of 77 per cent (481/623) of respondents held a postgraduate qualification. This percentage was consistent between the male and female sub-samples. The level of postgraduate qualification held increased with the grade of pharmacist. The most prevalent level at the junior grades of A/B and C was that of a certificate. At grade D it was the diploma level and at grades E and above it was at postgraduate master's level. This association between the level of postgraduate education and the grade of pharmacist

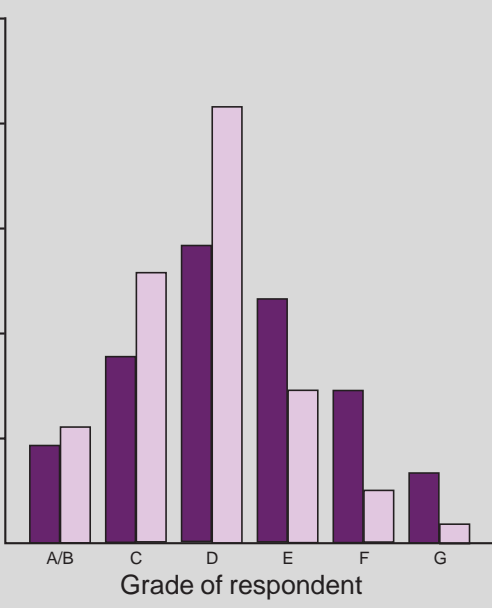


Figure 1: Distribution of grade within female (light shade) and male (dark shade) subsamples

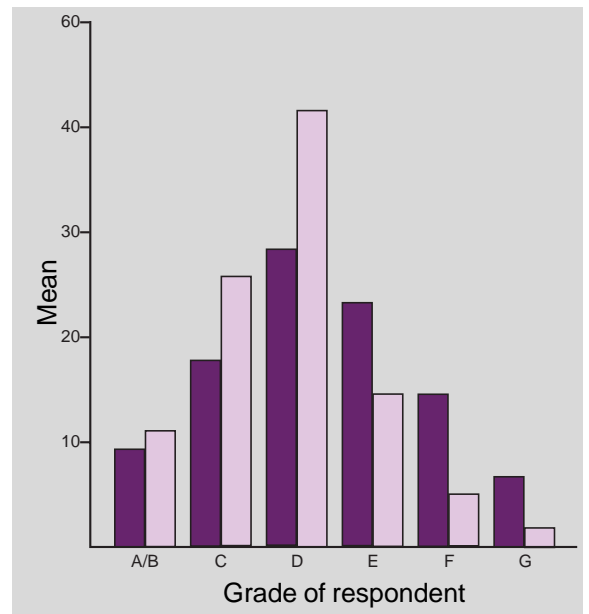


Figure 2: Z scores for job (dark shade) and career satisfaction (light shade) for overall sample

Factor	Alpha coefficient
1. Job satisfaction	0.77
2. Career satisfaction	0.86
3. Educational opportunities for postgraduate education and training	0.71
4. Educational support with postgraduate education and training	0.71
5. Perceived appreciation by patients	0.65
6. Satisfaction with all aspects of supervision	0.87
7. Satisfaction with duties	0.77
8. Satisfaction with salary	0.82
9. Satisfaction with work schedule	0.62
10. Satisfaction with autonomy at job	0.68
11. Inappropriate work hours	
12. Promotion prospects	

macist was found to be statistically significant when controlling for the confounding factor of age (partial correlation coefficient =0.4; $P<0.0001$). Within the senior grades, 43.9 per cent (29/66) of male pharmacists held a postgraduate masters compared with 32.7 per cent (32/98) of female pharmacists.

Personal factors within the senior grade pharmacists showed marked differences. For the male senior grade pharmacists (grade E and above) 16.7 per cent (11/66) were single compared with 45.4 per cent (44/97) of their female counterparts. In addition, 27.4 per cent (17/62) of male senior grade pharmacists reported no dependent children compared with 60.4 per cent (58/96) of female senior grade pharmacists.

Analysis of the female sub-sample showed that 20.2 per cent (93/461) of female pharmacists worked part time (compared

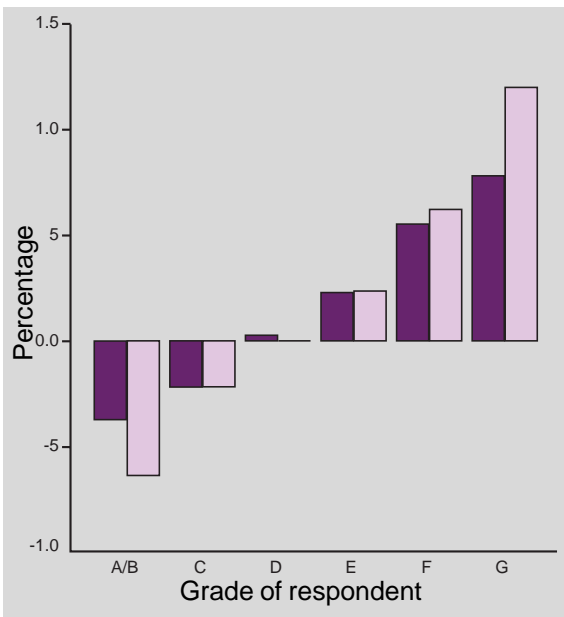


Figure 3: Z scores for satisfaction with duties (dark shade) and degree of autonomy (light shade) or overall sample

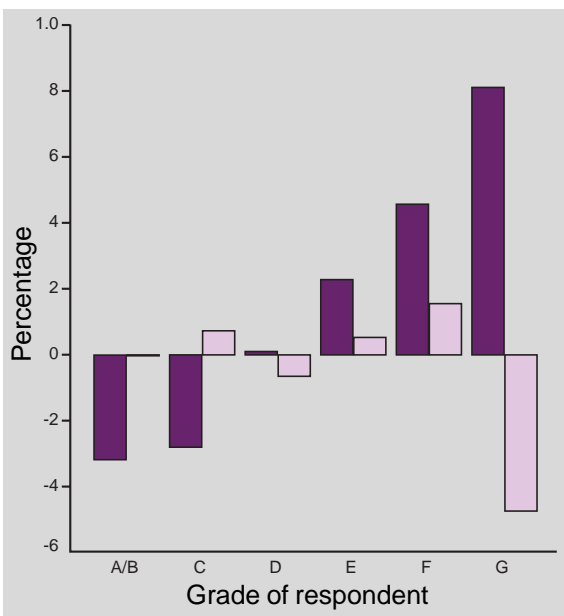


Figure 4: Z scores for opportunity (dark shade) and support (light shade) with postgraduate education and training

with 3.3 per cent [5/152] of males), of whom 85.7 per cent (78/91) had dependent children. The most prevalent grades within this group were C and D grade pharmacists.

Overall 82.3 per cent of female pharmacists (303/368) working full-time held a postgraduate qualification compared with a markedly lower proportion of 63.4 per cent (59/93) in the part time group. However, within the group of D grade female pharmacists, the proportion of pharmacists holding a postgraduate master's or PhD in the part time group was 42.1 per cent (16/38), compared with 19.2 per cent (29/151) in the equivalent full-time group. The most common postgraduate qualification held by the full-time D grade pharmacists was the diploma.

Factor scores of the extracted factors were examined. Since each factor contained a different number of items, factor scores were

standardised to allow for direct comparisons. The resulting z scores had a mean of zero and a standard deviation of one. Differences between groups were tested for significance using two tailed *t*-tests and analysis of variance.

When z scores were examined for the sub-samples of male and female pharmacists, the males were found to be significantly less satisfied with their jobs and careers than female pharmacists ($t=2.71$, $P=0.007$). Male attitudinal perceptions of their promotion prospects ($t=2.38$, $P=0.02$) and personal support with postgraduate education or training ($t=2.39$, $P=0.02$) was also significantly lower than in their female counterparts.

Examination of job and career satisfaction scores showed that satisfaction increased with grade, with the C grade pharmacists being the least satisfied (Figure 2). The differences in job satisfaction seen between the grades were significant (ANOVA, $F=4.889$, $df=5$, $P<0.0001$). The post-hoc Bonferroni test showed significant differences in job satisfaction between the C grade pharmacists and the D and E grade pharmacists ($P=0.05$). The differences between the C grade pharmacists and the F grade pharmacists were also significant ($P=0.001$). A similar trend in the level of satisfaction with grade was observed with the factors of "degree of autonomy" and "satisfaction with duties" (Figure 3). The general increase in satisfaction with duties by grade was significant (ANOVA, $F=9.636$, $P<0.001$).

Scores for the factor pertaining to satisfaction with all aspects of supervision showed that the senior grades (grades E and above) were more satisfied than the lower grades of grade A to D. This trend was also found to be significant (ANOVA, $F=7.1$, $P<0.001$). Again it was the C grade pharmacists who were the least satisfied with all aspects of supervision.

On examination of the factors relating to satisfaction with salary and inappropriate work hours, scores showed that although the senior grade pharmacists were more satisfied with their salaries than the junior grade pharmacists (grade A to C), they perceived their workload and hours to be excessive, more so than pharmacists in junior grades.

Scores for factors relating to postgraduate education and training showed that the senior grade pharmacists (grades E and above) had a higher and more positive perception of the opportunities available than the junior grade pharmacists (Figure 4). When these factor scores were examined for full and part-time female pharmacists, significant differences were found between the

TABLE 2: DEMOGRAPHICS OF RESPONDENT SAMPLE

	Pharmacists (%) (n=614)	*Percentage of national posts
<i>Sex</i>		
Male	25	29 [†]
Female	75	71 [†]
<i>Grade</i>		
A/B	10.7	18.3 [‡]
C	23.8	24.3 [‡]
D	38.2	32.8 [‡]
E	16.7	24.7 [‡]
F	7.5	
G	3.1	

* Percentage of posts nationally available for grade E and above.

[†] Data obtained from recent figures of the register of pharmacists held by the Royal Pharmaceutical Society.

[‡] Data from report of recruitment and retention survey of hospital pharmacists carried out by D. Scott (see Pharm J 1999;262:99).

groups of D grade pharmacists. The D grade part time female pharmacists had a lower perception of their opportunity for further training and education, compared with their full-time counterparts (*t*-test, $P=0.035$).

DISCUSSION

The survey questionnaire contained 79 items and was administered anonymously with a single blanket follow up; a response of 49 per cent (623) is considered reasonable under these circumstances. The sample makeup shows close similarities with the hospital pharmacists' population in the UK.

The significantly lower level of satisfaction with job and career seen with the junior grade pharmacists (grade A to C), in particularly the grade C pharmacists, is a cause for concern. These junior grade pharmacists are by definition new to the profession. They should be supported and trained effectively, so that they enjoy their jobs as well as the career in which they are probably going to spend most of their working life. It is these pharmacists who are potentially future leaders of the profession. Pharmacists in junior grades (grade A to C) exhibited lower levels of satisfaction in many of the factors compared with those in higher grades of D and above. Lower levels of satisfaction in factors such as "satisfaction with salary" might be accounted for by the differences in salaries between the junior and senior grades. Factor scores for "satisfaction with duties" followed a similar trend to the "degree of autonomy" perceived, whereby scores increased with grade. The lower amount of perceived autonomy in the lower grade pharmacists might be explained by the fact that lower grades tend to get more supervision than higher grades. However, whether the degree of autonomy pharmacists have influences the amount of satisfaction they get with their duties cannot be ascertained, owing to the quantitative nature of the survey. Lower scores in factors relevant to daily work, such as "satisfaction with all aspects of supervision", "satisfaction with duties" and "satisfaction with work schedule" might exist because of staff shortages. This, however,

should not be accepted and presumed to be the sole reason. Lower scores in factors that should routinely be provided, such as "educational opportunities with postgraduate education or training", are also present. One possible explanation for this lower level of satisfaction is that of personal expectations. If the high expectations acquired during the academic life of a pharmacy undergraduate are unmet in the "real world" of pharmacy, dissatisfaction can arise.¹³ Another possible explanation is that in the light of current staff shortages, junior grade pharmacists are being used to maintain a service previously provided by a larger number of staff with little support and satisfaction. Z scores also showed that D grade pharmacists and above felt that their workload and hours were excessive, more so than the junior grades.

The respondent sample of this survey has been shown to be similar to the national population of hospital pharmacists with respect to the distribution of gender and grade. This sample is likely, therefore, to be representative of the target population. Although the ratio of female to male pharmacists in the hospital sector is 3:1, there is a higher proportion of men in senior posts than there is of women. Other studies have also reported the under-representation of women in pharmacy management positions.^{14,15} One possible explanation for this is that a higher proportion of male senior grade pharmacists hold a high level of postgraduate qualifications (masters or above) compared with their female counterparts. The level of postgraduate qualification held has been shown to increase with grade and is independent of the age of the respondent. However, other explanations might lie in the personal profiles of the male and female sub-samples.

There is a higher proportion of female senior grade pharmacists who are single, and who have no dependent children compared with their male counterparts. This may reflect the fact that some women intentionally choose a career before a family. This in part may be influenced by the possible inflexibility of the hospital career structure to the circumstances of female employees who choose

to raise a family and continue to work. Women with families might not aspire to senior posts because of their family commitments. Conversely, they may aspire to senior posts, but find that the opportunities for career progression for part-time women in the hospital career structure are limited. If the latter is true, this narrows the opportunity for career progression to about 20 per cent of the female workforce. Since 71 per cent of hospital pharmacists are female, these issues are a potential cause for concern.

With respect to postgraduate education, there was a higher proportion of female pharmacists holding a postgraduate qualification in the full-time group than in the part-time group. However, the data also show that within the group of D grade female pharmacists, there is a higher proportion holding a postgraduate master's or above in the part-time group than in the full-time group. Within the group of full-time female D grade pharmacists the proportion of pharmacists with a postgraduate master's or above was higher in the group without children than in the group with children. This provides evidence to suggest that D grade female pharmacists might work towards a high personal level of postgraduate education before taking career breaks. Studies examining the work patterns of female pharmacists have shown that women tend to return to work on a part time basis following career breaks.^{10,11} Women might choose to attain a high level of postgraduate qualification before career breaks, because they may not want the additional stress of further education while looking after a family. Z scores for the factor "opportunities for postgraduate education or training" show that part-time D grade female pharmacists have a significantly lower perception of their educational or training opportunities than their full-time counterparts. This perception may also contribute to women attaining a high level of postgraduate education prior to career breaks.

The limitations of this questionnaire include the number of items it contains. Even after item exclusion following factor and reliability analysis the number of retained

items was 50. However, since the reliability of each factor has been ascertained, managers can use factors individually to assess different working aspects of their staff. Many of the factors pertain to daily work regimes and are unlikely to lose relevance in years to come.

CONCLUSION

Analysis of the demographic data has shown the current state of the hospital pharmacy workforce. It has highlighted a greater proportional representation of males than females at the senior management level (despite an overall 3:1 ratio of female to male both in this sample and the UK hospital pharmacist population). There are differences between the part time and full-time female groups, with a higher proportion of full-time females holding a postgraduate qualification. The analysis of the factor scores has highlighted areas of concern, particularly related to the relative dissatisfaction among the junior grade pharmacists. Due to the quantitative nature of the survey, conclusive explanations cannot be given for the trends seen in these factor scores. However they do highlight major areas of concern and generate several valid issues and questions pertaining to the retention and recruitment of hospital pharmacists. These, along with the evidence provided by the analysis of the demographic data, give clear directions for further research. Answers to these questions will help in the recruitment and retention of the least satisfied grade of hospital pharmacists (grades A to C). It will also contribute to the recruitment of future managers and leaders of the profession. Further work relating to this survey will attempt to provide a weighting for the major influences on job and career satisfaction.

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REFERENCES

- Hospital pharmacist vacancies rate three times greater than nurses'. *Pharm J* 1999;262:99.
- American Society of Hospital Pharmacists. ASHP technical assistance bulletin on the recruitment, selection, and retention of pharmacy personnel. *Am J Hosp Pharm* 1994;51:1811-5.
- Smith SN, Stewart JE, Grussing PG. Factors influencing the rate of job turnover among hospital pharmacists. *Am J Hosp Pharm* 1986;43:1936-41.
- Kawabata A, Murakami E, Iwaki M, Ogiso T, Suzuki S, Mishima M, et al. Importance of clinical activities to job satisfaction in Japanese pharmacists. *Am J Health-System Pharm* 1998;55:360-3.
- Olson DS, Lawson KA. Relationship between hospital pharmacists' job satisfaction and involvement in clinical activities. *Am J Health-System Pharm* 1996;53:281-4.
- Ortiz M, Walker W-L, Thomas R. Job satisfaction dimensions of Australian community pharmacists. *J Soc Admin Pharm* 1992;9:149-58.
- Willett VJ, Cooper CL. Stress and job satisfaction in community pharmacy: a pilot study. *Pharm J* 1996;256:94-8.
- Barnett CW, Kimberlin CL. Development and validation of an instrument to measure pharmacists' satisfaction with their jobs and careers. *Am J Pharm Educ* 1986;50:5-14.
- Part-time opportunities wanted. *Pharm J* 1989;242:93.
- Elworthy PH. The work pattern of women pharmacists, 1966 to 1983. *Pharm J* 1986;237:218-24.
- Elworthy PH. Work pattern of women pharmacists graduating in 1953. *Pharm J* 1988;240:11-16.
- Bryman A, Cramer D. Quantitative data analysis with SPSS for Windows. London: Routledge; 1997.
- Noel MW, Hammel RJ, Bootman JL. Job satisfaction and the future of pharmacy. *Am J Hosp Pharm* 1982;39:649-51.
- Nice KJ. Women in pharmacy management — why not? *Am Pharm* 1984; NS24:50-55.
- Shepherd MD, Kirk KW. Men and women as pharmacy managers. *Am J Hosp Pharm* 1981;38:1463-6.