Back pain in nursing and associated factors: a study

This article reports on an assessment of back pain and associated factors undertaken with nursing staff on nine NHS hospital wards and two private wards. One hundred and sixty eight nurses completed a confidential, retrospective questionnaire. The results suggest that despite the implementation of the 1992 EC manual handling operations regulations, back pain among nurses still remains a problem and is often due to the cumulative effects of work pressures. There is little evidence that training in manual handling reduces the prevalence of back pain directly, since the factors influencing the occurrence of back pain are complex.

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KEY WORDS

- BACK PAIN
- OCCUPATIONAL HEALTH AND SAFETY

These key words are based upon work undertaken by the RCN Library.

Back pain among nursing staff costs the NHS considerable sums of money through sick leave, compensation benefits, replacement staff and treatment costs (Newman and Callaghan 1993).

Comparing the results of previous studies into the problem is difficult due to the diversity of definitions given to back pain. These include variations in anatomical sites, level of pain and period of pain. Some studies, such as that by Stubbs et al (1983), investigated any occupational back pain experienced by subjects while, at the other extreme, Heap (1987) enquired only about occupational lower back pain causing the individual to be absent from work for a minimum of three days.

The Health and Safety Commission (1991) pointed out that the lifting tasks of the nursing profession are comparable with those of the hardest labour. Many factors, most of which are postural in nature, have been
identified as potential causes of back pain (Buckle 1987). It seems likely, however, that the main cause of back pain among nursing staff is the long-term cumulative effects of day-to-day manual handling of patients rather than the single event which preceded the back pain (Stubbs and Buckle 1984).

Hospital trusts have used the training of staff in manual handling techniques as a solution to this problem, yet existing research on the effects of manual handling training is inconclusive. Studies have not yet provided clear evidence that training reduces the prevalence of back disorders.

There appears to be a higher prevalence of back pain on wards where staff carry out more physically demanding duties than on other wards (Klabber-Moffett et al 1993). There are no conclusive results concerning the relationship between prevalence of back pain and nursing grade or experience. Similarly, there is no consistent evidence to associate anthropometric measures with back pain or injury, with the exception of obesity (Garrett et al 1992).

Recent research suggests that psychosocial factors may link back pain and its many predisposing factors (Klabber-Moffett et al 1993), such as job satisfaction, fellowship with co-workers, stress levels, work organisation and personal characteristics.

Since the 1992 EC manual handling operations regulations were implemented (HSE 1992), considerable effort has been made by NHS trusts to train nurses in the techniques of manual handling and provide the appropriate equipment, however, there is little data available to assess the effects of introducing the regulations.

AIMS OF THE STUDY
The aim of this research study was to provide an updated assessment of the prevalence and characteristics of back pain among nursing staff. The study also aimed to identify and examine factors which may be related to back pain in the sample population and to ascertain nurses' views concerning the suitability of their uniforms for manual handling purposes. The researcher expected the results to provide further evidence to support or challenge the findings of existing research.

METHOD
A retrospective, confidential questionnaire was used for data collection as this was considered to be the most suitable approach to assessing the large population required for an epidemiological study. The questionnaire contained mostly closed questions together with a limited number of open-ended questions to obtain more in-depth responses.

The validity of the questionnaire was enhanced by basing it on questionnaires used in previously published research and by consulting experts in the field. The reliability of the questionnaire was tested in a pilot study to identify ambiguous questions. A few minor changes were made as result of the pilot study.

The questionnaire itself was divided into six sections:

- Personal characteristics
- Job characteristics
- Current training in moving and handling
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- Standard of lifting/manual handling techniques
- Work environment
- Back pain experience.

A total of 263 questionnaires were distributed to all the nurses in a convenience sample of nine wards in an NHS trust hospital and two wards in a private hospital. A total number of 168 (64 per cent) questionnaires were returned and analysed using Statistical Package for the Social Sciences (SPSS).

RESULTS AND DISCUSSION

Prevalence of back pain
The study revealed that 59.5 per cent of nurses had suffered back pain over the past year and 36.9 per cent of nurses had suffered pain within the past two weeks before completing the questionnaire. These estimates correspond closely with those of other studies (Harber et al 1985) which suggests the prevalence of back pain has not substantially reduced as a result of the 1992 EC regulations.

Characteristics of back pain
The lower back appeared to be the most common site for pain, with 47 per cent of respondents in this study suffering pain in the lower back. In general, the pain lasted less than one week and only 24 per cent of respondents needed to change their activities outside of work because of the pain.

Eighty five per cent of respondents with back pain had not consulted their GP or occupational health department about their pain within the past year. This suggests that a large proportion of nurses experience minor ailments as opposed to serious injuries. Yet a total of 659 days work were lost over a period of one year by this sample population alone, a statistic which has cost implications for health services.

Causes of back pain
A large proportion of back pain was attributed to patient handling, particularly moving patients in bed. Many respondents did not attribute their back pain to one situation but to the general cumulative effects of a heavy workload. This corresponds with the fact that only 23 per cent of respondents with back injury had completed an accident form within the past year. The main reasons given for not completing the forms were that no specific event could be identified which caused the injury or the injury was not noticed until after the event.

This suggests that the general cumulative effects of wear and tear on an individual's back from manual handling and lifting are major causes of back pain.

Personal characteristics
No correlation was found between body mass index or height and back pain prevalence. Back pain was, however, related to individual weight, since the average weight for nurses with back pain was higher than for those without pain. This was statistically significant (p<0.05).

Job characteristics
It was difficult to assess the true effects of ward specialty on back pain because the number of respondents on each ward varied greatly, and many wards had several patients from other specialties due to the regular shortage of beds. There was no apparent difference between the prevalence of back pain on the private and NHS wards.
The results suggest that those with more nursing experience have considerably less back pain than those with less nursing experience. In addition, a higher proportion of younger nurses had back pain compared with older nurses. Both these findings support the suggestion by Stubbs et al (1986) that the older generation of nurses are a 'survivor population' with stronger backs.

Sisters and senior staff nurses had a lower prevalence of back pain when compared with the staff/enrolled nurse and auxiliary nursing groups (Fig. 2). This may be attributed to the fact that senior staff are less involved in the manual handling of patients because of organisational and management responsibilities and may also be part of the older survivor population.

**Training in manual handling** The majority of respondents had received training for two or more days within the past three years. The findings of this survey suggest that individuals with more recent training in manual handling and lifting actually have a higher prevalence of back pain (Fig. 3). Therefore, it would seem that training in manual handling does not necessarily reduce the prevalence of back pain and may in fact exacerbate the problem. Although the reason for this result is unclear, it may be that the techniques taught are inappropriate or limit the staff to using only certain lifting techniques which are impractical when under pressure and wards are short of staff. Furthermore, it could be the case that training causes nurses to be more aware of their backs and thus more sensitive to the occurrence of back pain.

**Manual handling and lifting techniques** In relation to the use of good manual handling and lifting techniques, the majority of nurses felt they carried out good techniques at work more than 50 per cent of the time. The most common reason stated for not lifting appropriately was staff shortages.

Only 36 per cent of nurses said they were prevented from using mechanical aids for lifting because there was insufficient equipment, no equipment or the available equipment was out of order. This finding compares favourably with previous studies and suggests an improvement since the implementation of the 1992 EC regulations.

**Psychosocial work environment** A high percentage of respondents (87.3 per cent) felt they had too much work to do and that staff shortages were a source of work pressure (92.2 per cent). A statistical correlation existed between the prevalence of back pain and a high level of pressure at work (p<0.05) (Fig. 4). But there was no evidence to suggest the direction of this relationship. Indeed, back pain may be both a cause and a result of increased work pressure and stress.

**Uniform** When asked about their uniform, 88 per cent of respondents said that they wear a conventional dress with no pleats. The majority of these individuals were dissatisfied with its comfort and practicality for lifting and handling and several suggested alternative, more practical uniforms, such as trousers and tunics.

**CONCLUSION**

Despite the implementation of the 1992 EC manual handling operations regulations, back pain, particularly of the lower back, remains a common problem within the nursing profession. It continues to have considerable effects on the efficiency of healthcare delivery both financially and through the physical and psychological wellbeing of the workers.
would appear that a large proportion of back pain is due to the cumulative effects of over-work which is often due to staff shortages. This may be part of a downward spiralling effect as back pain also exacerbates the problem of staff shortages and work pressure.

There is evidence from this study that older, more experienced nurses are part of a survivor population with stronger backs. It also appears that heavier nurses are more likely to experience back pain. The study also provides evidence that the traditional uniform style is frequently viewed as a hindrance to correct manual handling and lifting techniques and an alternative style would be welcomed by many.

It appears that training in manual handling in itself does not reduce back pain prevalence, and may in fact exacerbate the problem. It is not clear from this study why training is not beneficial, thus further investigation would be necessary to draw any valid research-based explanation.

Further research into the psychosocial work environment effects on back pain would also be beneficial. This may well provide a link to explain the variable effects of other factors on back pain.

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Implications for practice

1. Nurses should be taught a wide range of manual handling and lifting techniques to meet the needs of patients and staff working under intense pressure with insufficient staff.

2. Nurses’ uniforms should be assessed for their practicality and comfort when carrying out manual handling and lifting of patients.

3. The performance of nurses in lifting and handling of patients should be assessed periodically to ensure they are practising techniques in a manner that protects themselves as well as patients.

4. Further research into the relationship between the psychosocial environment and predisposing factors is necessary.

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