

Prevalence of back pain and characteristics of the physical workload of community nurses

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A research project is described that analyses the back pain prevalence and physical working conditions of community nurses. The purpose was to compare the position of nurses working in institutional care with the specific situation of nurses working in the private homes of their patients. The results of a questionnaire showed that the back pain prevalence was relatively high as compared to other occupations and also when compared to other health care sectors. The home care organization is influenced not only by sick leave due to back pain, but also its efficiency is hampered by nurses with back pain who continue to work. It appeared that the total sick leave incidence due to musculoskeletal disorders other than back pain exceeds that due to back pain alone. The physical exposure level not only consisted of frequent and heavy lifting and transferring of patients but also a substantial static workload was present. The onset of back pain seems to result from a gradual build up of overload reaching its maximum. A preventive approach should take these differential loading factors into account. The consequences for preventive interventions are discussed resulting in recommendations towards a (participatory) ergonomic approach. This material forms the baseline of a controlled prospective trial in home care.

1. Introduction

1.1. General

Although nursing has in many respects developed into a modern profession supported by refined technology, caring for people still appears to be a physically demanding or even hazardous activity. In their bibliography Jensen *et al.* (1988) consider the nursing population to be at risk for back pain, but they conclude that the risk profile for nurses working in home or community care is still unclear. The scant material points to the special risks involved in working in home care (Dogger 1988, Mol and Knibbe 1991, BVG 1992, Moens *et al.* 1993). From an ergonomic point of view home care differs from institutionalized care. Care is given in private homes, homes that were not built and designed with that purpose in mind. Improving the ergonomic situation is possible, but implies interfering in a situation where patients and their relatives have already had to allow substantial interference (Mol and Knibbe 1991).

The design of such an intervention should rely on a detailed description of the prevalence of back pain and the specific characteristics of the workload in community care (Jensen *et al.* 1988). The first step in this process was to conduct a survey among community nurses. The objectives were (1) to investigate the prevalence of back pain and other physical problems among nurses working in home care, (2) to assess possible differences between nurses and nursing auxiliaries, (3) to determine the presence of risk factors of physically demanding situations associated with the prevalence of back pain.

As such, this study is the baseline measurement of a controlled prospective intervention study.

In the Netherlands community nurses usually work as generalists and provide care for all patient categories. In 1987 there was one community nurse for every 2903 inhabitants, and approximately one auxiliary community nurse per three community nurses (Verheij and Kerkstra 1992).

1.2. Back pain

Although the interpretation of epidemiological findings on back pain prevalence is complicated by the use of different criteria for back pain and research methods careful inferences may be drawn.

Back pain is a common phenomenon in the general population, with a lifetime prevalence of 51–65% and a point prevalence of 10–39% (Biering-Sorensen 1983, Haanen 1984, CBS 1986, Deyo and Tsui-Wu 1987). Among occupational groups the large variability in the prevalence of back pain suggests a relationship with occupational risk factors (Hildebrandt 1988, Garg 1981, Burdorf 1992). Using identical questionnaires Burdorf (1992) presents 12-month prevalences for maintenance workers (27%), office workers (34%), straddle carrier drivers (44%), crane operators (50–61%), concrete workers (59%) and forklift truck drivers (65%).

Narrowing the focus on nurses elicits the following material. Among applicants accepted by a nursing school a lifetime prevalence of back pain of 31% (Cedercreutz *et al.* 1987) and 35% (Knibbe 1988) and a 12-month prevalence of 19% (Knibbe 1988) is found.

During the professional career of nurses a lifetime prevalence of 35–90% is reported, a 12-month prevalence of 35–80% and a point prevalence of 16–37% (Dehlin *et al.* 1976, Harber *et al.* 1985, Takala and Kukkonen 1987, Kaplan and Deyo 1988, Estryn-Behar *et al.* 1990, Jensen 1990, Moens *et al.* 1993). For home care Moens *et al.* (1993) present a 12-month prevalence of 72% and a point prevalence of 22%. Home nursing ranks third on a list of occupational back accidents (Biering-Sorensen 1985). For Dutch community nurses Dogger (1988) reports a 12-month prevalence of 64% and a point prevalence of 18%, while Mol and Knibbe (1991) report a 12-month prevalence of 70%.

The interpretation of these findings is seriously hampered by the wide range, which besides the problems mentioned above, may be due to the heterogeneity of the nursing population. An analysis in a home-care setting should therefore allow for specifications.

1.3. Differences between subgroups of nurses

Three, partly overlapping, risk groups within the nursing population can be identified. Nursing aides and auxiliaries stand out especially as a risk group. A second, rather consistent, group are the young nurses and student nurses and the third group are nurses working in long-term care facilities.

The high prevalence among nursing aides and auxiliaries is attributed to the fact that the relative frequency and extent of lifting activities in these groups exceed those of registered nurses (Klein *et al.* 1984, Videman *et al.* 1984, Jensen 1987, Venning *et al.* 1987, Jensen *et al.* 1988, Kaplan and Deyo 1988, Knibbe 1988, Engkvist *et al.* 1992, Turnbull *et al.* 1992). Their work focuses on direct care and assistance during daily activities like washing, bathing and toileting mainly chronically ill people.

The second risk group is the combined group of young and student nurses (Magora and Taustein 1969, Ferguson 1970, Cust 1976, Videman *et al.* 1984, Arad and Ryan

1986, Skovron *et al.* 1987, Jensen *et al.* 1988, Knibbe 1988, Engkvist *et al.* 1992). Age as such is not considered to be a risk factor. On the contrary, in general and in the nursing population the prevalence of back pain increases steadily with age until mid-life and then decreases after the fifth decade (Owen 1986, Pope 1989, Estry-Behar *et al.* 1990, Garg 1991). Lack of experience in general, and in manual lifting skills in particular, may contribute to an early peak among the younger groups, as in other occupational groups (Garg 1991, Troup 1984). Nursing home observations demonstrate their lifting to be less efficient, leading to greater exposure to physical stress (Knibbe 1988). However, as most results are based on cross-sectional material, self-selection effects ('healthy worker effect') in the older group may provide an alternative explanation for their lower prevalence.

The third risk group emerges when comparing health care sectors. Nurses working in geriatrics and long-term care present a risk group (Imbeau and Lortie 1984, Jensen 1987, Knibbe 1988, Moens *et al.* 1993). This can again be explained by the relatively high frequency and heavy load per transfer. An aggravating factor can be the uncontrollable and unpredictable nature of transfers, especially in psychogeriatrics (Knibbe 1988). Communication with, and therefore instruction of, the patient is limited or even impossible.

Research by Stubbs *et al.* (1983) appears to contradict the finding of certain risk settings. This could be due to selection effects occurring when nurses apply for less strenuous jobs elsewhere ('job rotation', Raistrick 1981). Nursing auxiliaries have less opportunities for this because of their lower qualifications, which provides an additional explanation for their risk profile.

Community nurses represent on average an experienced and not very young group of nurses, often working with chronically ill and elderly patients requiring substantial assistance. As such, community nurses might represent a risk group, especially considering the unfavourable ergonomic working conditions. Within the group of community nurses auxiliaries are mostly involved in direct physical hygienic care and might therefore be more at risk (Vorst-Thijssen *et al.* 1990).

1.4. Exposure of risk factors

Patient handling is often considered to be the most prevailing risk factor for back pain in nursing (Jensen 1990). Other loading factors may also contribute to a gradual build up of the total exposure level, stressing the need for a complete description of the workload and its differential loading influences. Examples are the static load (Andersson 1981, Videman *et al.* 1984, Estry-Behar *et al.* 1990) and factors indirectly related to patient care (Harber *et al.* 1987, Engels *et al.* 1994).

2. Method

A questionnaire was developed based on the Nordic questionnaire for the analysis of musculoskeletal disorders (Kuorinka *et al.* 1987). A major characteristic is the avoidance of differences in clinical diagnostic labelling by asking for 'ache, pain or discomfort' as a final common pathway for tracing occupational health problems. Its validity and reliability is considered acceptable although a response rate of at least 80% is required in order to avoid a selective response of people with back pain (Holmström and Moritz 1991, Dickinson *et al.* 1992). The part specifically dealing with the back was used, supplemented by basic questions concerning pain in other regions (arm, neck/shoulder, knee). As the material forms the baseline measurement of a prospective trial with surveys at 6-month intervals, questions were added to assess the 3-month

prevalence of back pain. The 12-month prevalence overlaps the 6-month intervention-interval and the 7-day prevalence is considered to be too unreliable for assessing a fluctuating and recurrent condition like back pain (Hildebrandt and Douwes 1991).

Questions were added about the ways of coping with back problems (yes/no answers), and about the nurses' opinion on the causes of their back pain. Finally they were asked to describe the moment when their back pain started (open-ended). A pre-test in home care ($n = 118$) led to minor textual and layout changes.

The questionnaire, with a free return envelope, was mailed to the home addresses of all nurses employed by the home care organization of the city of Rotterdam. Nurse managers and nurses working only for the child health clinics were excluded. A reminder, and involvement by the nurse managers, improved the response rate.

The quantitative material was analysed by means of SPSS/PC + (Norusis 1990). The accuracy of the data entry process was optimized by means of a second data entry phase. The qualitative material derived from the open-ended questions was analysed by two observers, step-wise by means of KWALITAN (Peters 1991). This software is based on the work of Glaser and Strauss (1967) and allows for systematic, step-wise assignment of keywords.

Differences between frequencies were tested with the χ^2 -test and differences between the means of continuous variables were tested with the Mann-Whitney test. Logistic regression analysis was carried out to determine the importance of different variables for the occurrence of back pain. Significance levels below 0.10 are presented, but only p -levels below 0.05 are considered to be significant and indicated with a symbol in the tables.

3. Results

3.1. Population

A total of 390 questionnaires were returned indicating a response rate of 94%. For reasons of comparability with other studies men ($n = 17$) and pregnant women ($n = 18$) were excluded, leaving a group of 355 women for further analysis.

This group ($n = 355$, average age 34.2 years, (SD = 8.8; 21–61 years)) had an average working experience in health care of 13.4 years (SD = 8.1, 1–40 years) and worked on average 26.2 h per week (SD = 11.6; 2–50 hours), mostly in day shifts with occasional weekend duties (72.9%). More than half of the group consisted of community nurses (53.4%, $n = 189$), the other half being community nurse auxiliaries ($n = 165$) (table 1).

There are differences between both groups as regards age, work history and employment rate in hours per week (Mann-Whitney) (table 1). Auxiliaries are usually slightly older, have a longer work history and work fewer hours per week as compared to the nurses.

3.2. Prevalence of back pain

Prior to employment 18.0% had experienced an episode of back pain, while the cumulative lifetime prevalence was 87.0%. In the past 12 months 66.8% had experienced back pain. When logistic regression analysis was carried out the 12-month prevalence appeared to decrease with age. In figure 1 the decrease of the 12-month prevalence, stratified by five-year intervals, is presented.

The pain drawing demonstrated a pain-distribution concentrating in the lumbar region, as only 3.0% draws their back pain as being limited to the upper back (thoracic)

Table 1. Comparison of prevalence of back pain and individual characteristics for community nurses (CN) and community nurse auxiliaries (CNA).

	Total (n = 355)	CN (n = 189)	CNA (n = 165)	
<i>Individual characteristics</i>				
Age (year)	34.2 ± 8.8	33.8 ± 9.7	34.5 ± 7.4	†p = 0.03
Work history (year)	13.4 ± 8.1	12.3 ± 9.4	14.0 ± 6.0	†p = 0.00
Employment (hours/week)	26.2 ± 11.6	30.7 ± 9.1	20.8 ± 12.1	†p = 0.00
<i>Back pain</i>				
Never bp before starting work in health care (%)	18.0	19.0	17.0	
Life time prevalence (%)	87.0	88.8	84.8	
Bp previous 12 months (%)	66.8	71.4	61.2	‡p = 0.04
Bp previous 3 months (%)	51.8	54.5	48.5	
Bp last 7 days (%)	20.6	19.6	22.4	
<i>Sick leave due to back pain</i>				
Past 3 months (%)	5.1	5.3	4.8	
Frequency (times in 3 months)	1.0	1.0	1.0	
Total duration (days)	15.1 ± 26.1	4.7 ± 2.9	26.9 ± 34.8	p = 0.07

† Mann Whitney, $p < 0.05$.

‡ χ^2 , $p < 0.05$.

region (Kuorinka *et al.* 1987). A minority of 5.1% reports low-back pain radiating to one of the legs. This might be a sign of possible nerve root compression indicating more serious back pain. The majority (59.3%), however, presents low-back pain, symmetrically located in and limited to the lower back (figure 2).

One-fifth of the group (20.6%) reports back pain in the seven days prior to the survey. Slightly over half of the group experienced back pain in the preceding 3 months (51.8%) (table 1). The profile of their pain shows the following characteristics (table 2).

More than half of the group ($n = 184$) (62.1%) states that the pain lasted more than one day during at least one episode. A comparably large group (46.1%) experienced more than two episodes. A minority decided to go on sick leave (9.7%), which was a one-time occasion leading to an average number of 15.1 days off, with a maximum of 90 days, which is identical to the maximum as the group was only asked about the past 3 months (SD = 26.1, 1–90 days). The group of auxiliaries shows a longer period of sick leave, which is strongly influenced by a few long-term absentees (table 1). A connection between back pain and menstruation is reported by 25.4% (table 2). Two-thirds (68.3%) describes an activity or a moment during work when their back pain started. It is therefore not surprising to see that 89.9% is convinced of there being a connection between their back pain and their work.

In this group an attempt was also made to clarify the strategies that nurses choose to cope with their back trouble (table 2). The majority continues to work without going on sick leave (91.9%), while, as mentioned above, about one out of every ten nurses with back pain (9.7%) goes on sick leave. These figures overlap as they may refer to more than one episode during the 3-month period. Some nurses use pain-medication (11.4%), while a larger group (14.2%) decides to see a doctor. Even though most nurses continue their work without going on sick leave, an effect on the organization remains. A minority (16.3%) mentions that they have exchanged patients with a colleague because of the pain.

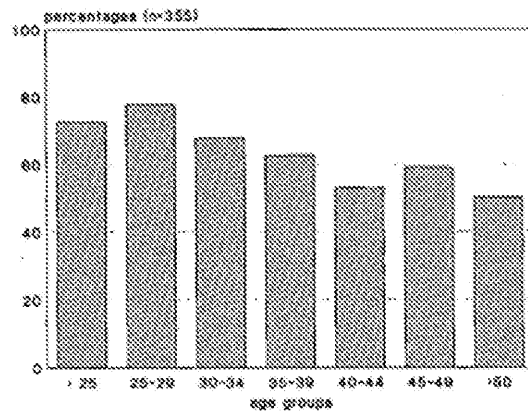


Figure 1. 12 months prevalence of back pain as related to age in 5-year intervals.

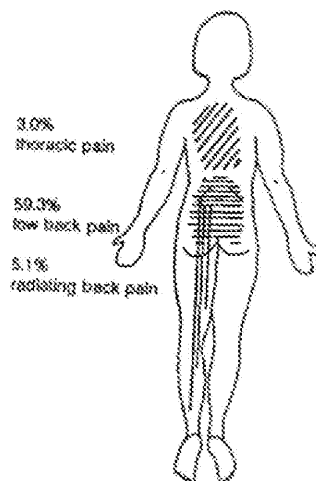


Figure 2. Main locations of back pain ($n = 237$).

3.3. Other physical health problems

Besides the fact that half of the total group ($n = 355$) suffered from back pain in the past three months, complaints about other regions of the locomotor system are noted as well: 34.9% reports neck/shoulder pain, 18.4% reports knee pain and 11.7% reports arm problems during those same three months. They feel that most of the problems experienced in the neck/shoulder region have to do with the workload (72.5%), while their indication is less pronounced as regards the other two regions (49.1% and 48.6%, respectively). A small portion of the total group goes on sick leave for these reasons (2.3–2.5%), but it is interesting to note that their total number ($n = 26$) exceeds the total number of nurses going on sick leave because of back pain ($n = 18$) (figure 3).

3.4. Differences between community nurses and community nurse auxiliaries

The 12-month prevalence of back pain in community nurses (71.4%) differs slightly but significantly from that of the community nurse auxiliaries (61.2%) (χ^2). Other

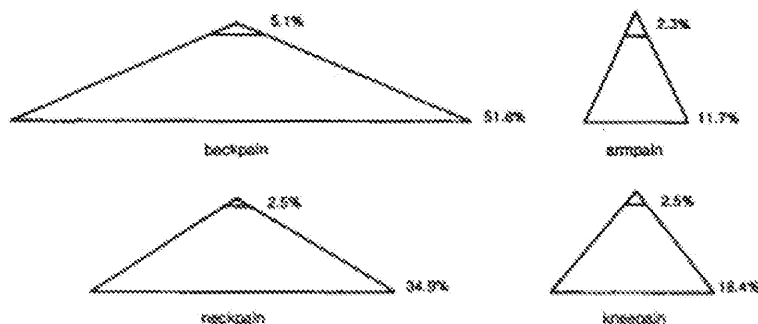


Figure 3. Percentage of complaints in other bodily regions and the percentage of sick leave due to these disorders ($n = 355$).

Table 2. Profile of back pain experienced in the prior 3 months for community nurses (CN) and community nurse auxiliaries (CNA) (in percentages).

	Total ($n = 184$)	CN ($n = 103$)	CNA ($n = 80$)
<i>Back pain</i>			
Lasting more than 1 day	62.1	56.3	68.3
> 2 episodes	46.1	43.6	48.8
Sick leave because of back pain	9.7	9.6	9.8
<i>Associations</i>			
Association with menstruation	25.4	23.1	28.4
Onset during work	68.3	70.0	66.2
Relation of back pain with work	89.9	95.0	83.3
<i>Coping strategies</i>			
Continue work with back pain	91.9	94.2	89.0
Pain medication for back pain	11.4	10.7	12.3
Consultation of doctor	14.2	13.3	15.9
Exchange of patients for reasons of back pain	16.3	16.5	16.3

† χ^2 , $p < 0.05$ (testing for differences between community nurses and community nurse auxiliaries).

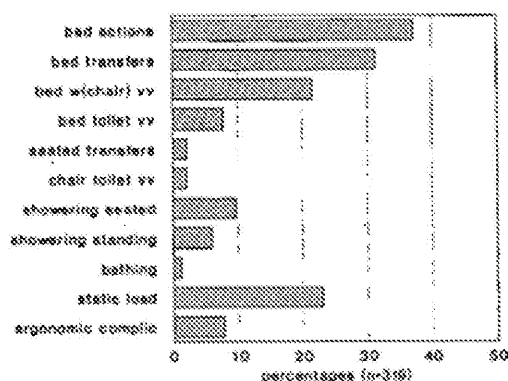


Figure 4. Physically demanding activities ($n = 319$).

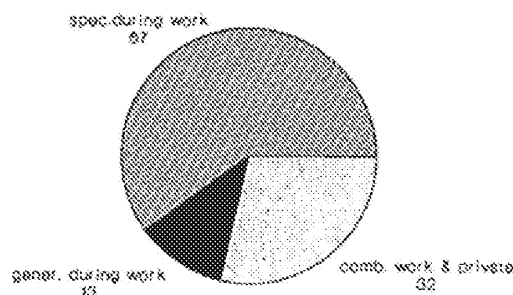


Figure 5. Descriptions of work situations leading to the onset of back pain ($n = 112$).

potential differences in the prevalence of back pain (pre-employment, lifetime, 3-month and 7-day prevalence) and complaints with respect to other bodily regions (knee, arm and shoulder) between both groups were not significant. The profile of back pain in the previous three months is comparable, although fewer auxiliaries perceive a connection between their pain and work (table 2).

3.5. Exposure to physically demanding situations and associations with back pain

In a separate section of the questionnaire nurses were asked whether or not they could describe any moments they considered to be physically demanding. The majority answered in the affirmative and 89.9% actually described those situations, which resulted in a colourful picture of 319 daily experiences or 'scenes' (figure 4).

These descriptions were categorized by two observers according to the factual information present. Often several transfers were described in one scene. A majority of the scenes (82.1%) were related to specified transfers of patients. Most often cited were transfers in bed (up the bed, sideways or turning) (31.3%) and transfers of patients in bed associated with nursing activities (37.3%), followed by transfers out of bed into a (wheel)chair or vice versa (21.6%). Less frequently mentioned were transfers 'bed to toilet or vice versa' (7.8%), seated transfers (2.2%), (wheel)chair to toilet (2.2%), and transfers related to 'showering seated' (9.7%), 'showering standing' (6.0%), and 'bathing' (1.3%). The static load on the back was mentioned in 74 cases (23.2%), complicated lifting due to ergonomic complications (7.8%), lifting together with the patient's relatives (2.8%) and lifting in acute situations (falls etc.) in 1.6%. More occasional situations related to, for example, lifting beds, handling prostheses and supporting patients. It is clear that physically demanding activities are not limited to lifting and transferring patients.

Besides these descriptions, the group experiencing back pain in the previous three months ($n = 184$) gave another set of descriptions when asked to describe the onset of their pain if this was related to some specified moment or situation during work and if they could recall it (figure 5). The resulting subgroup ($n = 112$) was divided into three groups: one stating that they experienced an onset of back pain during work which they described in detail (59.8%, $n = 67$), a second group giving a more general description (11.6%, $n = 13$), and a third group (28.6%, $n = 32$) describing a situation at work in addition to private life conditions.

The descriptions in the group co-referring to situations outside work mostly related to family or household activities. As the purpose of this project was to intervene in the working conditions these situations were not further analysed.

Sometimes more situations were described by one respondent. Nearly half of the respondents mentioned moments related to specified transfers (47.3%, $n = 53$). Three types were mentioned most often: the bed/chair or vice versa transfer ($n = 23$), the bed transfers related to a nursing activity like the use of a bedpan ($n = 15$), and finally the transfers in bed with the main purpose of moving (up the bed, sideways or turning) ($n = 13$). In the remaining group, four partly overlapping subgroups with a frequency of more than 10 cases each could be obtained from the descriptions. Most frequently mentioned were: the static load on the back (42.0%, $n = 47$), and a more gradual onset of the pain due to 'lifting too frequently' or 'too much' (42.0%, $n = 47$). Thirteen acute situations led to back pain (11.6%) (falls, sudden jerks, etc.). In 18 cases nurses indicated 'a wrong lifting technique' was the cause (16.1%). Finally, a 'miscellaneous' group remained: 'lifting a bed that had fallen apart', 'moving a washing machine blocking the bathroom entry' and a group of seemingly trivial actions like 'picking up a cup of coffee', 'I got stuck and they had to sit me down'.

4. Discussion

4.1. Prevalence of back pain

The high response rate reduces the chance of a selective response of nurses with back pain. The back pain problem among community nurses appears to be serious in comparison with the general population, other occupational groups and groups within the nursing profession. The 12-month prevalence of this group (66.8%) exceeds the range found for other occupational groups (27–65%) (Burdorf 1992). When compared to the total prevalence range of 43–80% of the whole nursing population, the prevalence of this community care subgroup is also located in the upper regions. The decrease of the prevalence with age can be due to a selection effect or to experience, or both, but owing to the cross-sectional design of this study no definite conclusions can be drawn. This high prevalence in addition to the results of other studies into community nursing supports the need for a preventive intervention aimed at reducing the prevalence of back pain.

The fact that back pain, as a reason for sick leave, is outnumbered by pain in other parts of the locomotor system implies that interventions aimed at reducing the load on the back should at least take the effect on other parts of the body into account. As some lifting techniques reduce the biomechanical stress on the back while increasing the burden on other parts of the body (Gagnon *et al.* 1987) the possibility of, for example, exchanging back pain for neck/shoulder pain is imaginable.

An interesting difference is seen when the four pain locations and the portion of the respective groups going on sick leave because of pain are compared (figure 4). The differences may be related to organizational or personal factors like pressure to continue working and feelings of responsibility towards patients. An explanation might be that, in general, nurses do not take back pain very seriously and sometimes consider it inherent to the profession (Knibbe 1988, Owen 1989).

A closer analysis of these findings is necessary if the purpose of an intervention is to ultimately reduce the costs involved in sick leave. Prevention of back pain is essentially different from a reduction of sick leave due to back pain. The effect of prevention on sick leave is indirect and theoretically more a long term effect. There may even be a counter effect on sick leave, as prevention programmes may sensitize people to the seriousness of their pain, leading to self-protection with subsequent sick leave.

4.2. Differences within the group

The findings suggest a higher prevalence among younger nurses and community nurses than among auxiliaries. This could be due to selection effects, but also to the fact that auxiliaries are less exposed as their work rate per week is significantly lower. Although this remains uncertain, conclusions can be drawn in due course as this material forms the baseline of a controlled prospective trial.

As around 5% of the primary study group ($n = 390$) was pregnant, this vulnerable subgroup demands special attention in back pain prevention (Paul 1993). The influence of pregnancy and the post-partum period on sick leave is substantial (16.7% of total sick leave) (BVG 1992). This requires a structural policy, as simple protective measures for pregnant nurses may lead to undesired overloading of non-pregnant nurses.

4.3. Consequences of back pain

The same negative interaction effects may occur when, as we found, nurses with back pain are excluded from strenuous activities or when patients are exchanged. Besides, this will have additional negative effects on the efficiency of the organization and the quality and continuity of care. These results demonstrate that a high prevalence of back pain among workers in an organization can affect its product in several ways. Although reduction of sick leave is often the main objective of preventive interventions, other organizational effects may be just as relevant and perhaps achieved more readily. It can be worthwhile to incorporate them in evaluating the effect of interventions. Besides these outcome measures, it seems wise to include assessments of the total exposure level and of complaints from other bodily regions as well.

4.4. Exposure

Taking a closer look at the moments of onset and the strenuous activities it is obvious that a diversity of potentially hazardous activities is presented. Besides patient handling, the static load and general fatigue as a result of frequent lifting is experienced as strenuous. A gradual build-up of overload, with a set of loading factors partly interacting or reinforcing each other, is a plausible explanation for the high prevalence. The presence of seemingly unrelated events triggering the onset supports the theory of cumulative stress reaching its limit. The private situation of the nurse appeared to be an additional loading factor.

4.5. Methodological considerations

Using a questionnaire not only for obtaining a description of the prevalence of pain but also for a description of the workload is questionable, as the reliability and validity are not high and the results reflect subjective experiences and evaluations. The picture presented here is currently being confronted with results from a more objective assessment. On the other hand, incorporating the subjective perspective of the workers in the design of prevention programmes is considered to have advantages ('participatory ergonomics') (Noro and Imada 1991). An obvious advantage is the opportunity to start out with solving a problem that they consider to be important, thus promoting primary motivation and enthusiasm, which is crucial for organizational change. From a research perspective, the nurses' view of the problem has prevented the authors from focusing too readily on lifting and transferring as the main problem.

5. Conclusion and consequences for preventive interventions

The high prevalence of back pain and the analysis of the exposure both point to an increased occupational risk of back pain. The traditional preventive intervention in nursing was to prepare the worker for physically demanding circumstances by training nurses in safe transfer techniques. The results indicate, however, that for several reasons a structural change in job demands might be more effective. First of all, the presence of more vulnerable subgroups requires a more protective approach (nurses continuing their work despite the pain, pregnant nurses, nurses combining physically demanding private life and work). The capacity of these subgroups to adapt to strenuous conditions is limited and the load cannot be transferred to their colleagues. Second, some lifting techniques do reduce the load on the back, but may lead to problems in the neck/shoulder region unless the job demands are altered structurally. The third argument is derived from the nurses' description of the exposure. The transfers and the conditions under which they are performed indicate that they approach or exceed the maximum limits acceptable for manual handling (Garg *et al.* 1992). In addition to this the static load and the influence of unpredictable situations adds to the total exposure level. To train nurses to adapt and face up to such a diversity of strenuous, complicated and unpredictable loading factors seems difficult, if not impossible.

Eliminating the overload and thus reducing the job demands through an ergonomic approach appears to be a promising option for community nurses. A project to study the effects of introducing patient lifting devices in home care is currently being carried out.

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