Pain from zero to ten: effects of a pain monitoring program for nurses

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SUMMARY

Pain management is a challenge for nurses, whose tasks include assessing pain, and planning, conducting and evaluating pain reducing interventions. Although many hospitalized patients suffer from pain, its treatment is often inadequate. Reasons for inadequate pain treatment include insufficient knowledge about pain and pain management in nurses, as well as the failure of nurses to assess pain on a systematic basis. To overcome these barriers to inadequate pain treatment a Pain Monitoring Program (PMP) for nurses was developed, implemented and evaluated. The PMP consisted of two components: educating nurses about pain, pain assessment and pain management, and implementing daily pain assessment by means of a numeric rating scale.

The feasibility and effects of the PMP were investigated in two studies, which are described in this thesis. The main study was conducted in three hospitals. A quasi-experimental design with a non-equivalent control group was used to evaluate the feasibility and effects of the PMP on nurses and patients. In total, 240 nurses from nine wards and 703 patients participated: 358 patients in the control group and 345 in the intervention group. Patients were interviewed twice, i.e. at the beginning and at the end of hospitalization.

Based on the results of the main study, a second study was performed in five hospitals, which focused on implementation of the PMP with minimal assistance and in which long-term effects were monitored and evaluated. A total of eleven wards with 277 nurses and 115 physicians participated. A pretest-post-test design without a control group was used.

This thesis has two main parts. In the first part the main study is described (Chapter 2-6) and in the second part the follow-up study (Chapter 7). Chapter 2 addresses the effects of the PMP on nurses’ pain knowledge and attitude, and Chapter 3 addresses nurses’ compliance with daily pain assessment, and opinion about daily pain assessment of nurses and patients. Chapter 4 describes the effects of the PMP on communication, assessment and documentation. Chapter 5 presents the effect of the PMP on the administration of analgesics by nurses, and Chapter 6 describes the effect of the PMP on patients’ pain. Finally, in Chapter 7, the feasibility and effects of the PMP in clinical practice are presented. The thesis concludes with conclusions and a general discussion (Chapter 8). This summary presents the main results of the thesis.

Chapter 1 gives an introduction to the scope of the thesis. The rationale for this thesis is given and the research questions are discussed. An overview of all variables relevant to study the effects of the PMP is presented.
One of the reasons for inadequate pain treatment in hospitalized patients is that nurses have insufficient knowledge about pain and pain management. Chapter 2 describes the effects of the PMP on nurses' knowledge and attitude with regard to pain and pain management. The effects of the PMP were measured in a pretest-post-test design.

The results show that nurses had knowledge deficits and prejudices with regard to pain and pain management. Age and additional pain courses in pain partly predicted nurses' pain knowledge. After nurses had followed the education program, the average score on the Pain Knowledge Questionnaire increased from 69% at pretest to 76% at post-test; particularly the items on the use of opioids showed an increase. Nurses' attitude changed with regard to their level of knowledge and skills in relieving pain, willingness to assess pain on a daily basis, and attention to patients' pain complaints. It can be concluded that the PMP is effective in improving nurses' knowledge of pain management and focusing nurses' attention on patients' pain complaints.

Current guidelines for pain management recommend systematic assessment of pain. A few standardized tools exist for the daily assessment of pain intensity (e.g. the numeric rating scale or visual analogue scale), but these instruments are rarely used by nurses. In Chapter 3 the feasibility of daily pain assessment from the nurses' and patients' perspective in multiple settings is presented. The outcomes studied were the professional compliance of nurses with daily pain assessment, and the value of daily pain assessment for both nurses and patients.

The results show that nurses' compliance with daily pain assessment was high (74%) and daily pain assessment was feasible and valued by nurses; however, differences between the three hospitals and two care settings (medical versus surgical wards) were found. Although a number of patients initially had difficulty with expressing their pain by use of a number, almost all patients were able to give a pain score and a majority was positive about daily pain assessment. From this study, it can be concluded that daily pain assessment is practical and appreciated by nurses as well as patients.

Nurses need to be informed about the patient's pain to be able to take appropriate measures to alleviate pain. However, communication, assessment and documentation of pain by nurses is often a problem for hospitalized patients. In Chapter 4 the effect of the PMP on communication about pain between patients and nurses and between patients and physicians is described. In addition, details are given of the effects of the PMP on the agreement between patients' pain intensity and nurses' estimations of patients' pain intensity, and the documentation about pain in the nursing records.

Results of the control group show that communication about pain between patients and
nurses, agreement between patients’ and nurses pain ratings, and documentation about pain in nursing records, was inadequate. Communication and documentation proved to be better in patients with moderate to severe pain than in patients with mild pain. Agreement between patients’ and nurses’ pain ratings was better in patients with mild pain. Finally, older patients in the control group communicated less with nurses and physicians about pain than do younger patients, and less pain documentation was present in the nursing records of older patients.

The PMP proved to be effective in improving nurses’ assessment of patients’ pain and documentation about pain in nursing records. Communication about pain between patients and nurses, and between patients and physicians did not improve as a result of the PMP. Patients’ pain intensity and care setting were related to the efficacy of the PMP. It can be concluded that, although the PMP is effective in improving assessment and documentation, the intervention does not have a strong impact on the communication between patients and nurses and between patients and physicians.

Both physicians and nurses are responsible for adequate pain management. In Chapter 5 the pain management behavior of physicians and nurses is assessed, and the effect of the PMP on the extent that nurses administer analgesics is evaluated. Several outcomes were used to evaluate the administration of analgesics by nurses: the prescribed analgesics by physicians, the administered analgesics by nurses, and the discrepancy between the ordered and the administered analgesics.

Results of the control group show that at the first interview 70% of the patients were prescribed analgesics by physicians, and 74% of those patients were actually administered analgesics by nurses. Consequently, only 50% of the patients in pain received analgesics. Similar results were found for the second interview.

The PMP improved nurses’ administration of analgesics. At the first interview more patients received analgesics and the doses of administered non-opioids increased. At the time of the second interview, more patients received weak opioids. The discrepancy between the analgesics ordered by physicians and administered by nurses did not change for the group as a whole. However, for patients with moderate to severe pain, a decrease in the discrepancy between ordered and administered analgesics was found as well as an increase in the administration of analgesics. It can be concluded that the use of a simple method such as a numeric rating scale together with pain education for nurses is effective in improving the administration of analgesics by nurses.

In Chapter 6 the effect of the PMP on patients’ pain is described. Patients’ Pain Intensity Scores, Pain Intensity Markers and the Tolerable Pain Intensity Scale were used to evaluate
the effect of the PMP.

Results of the study show that most hospitalized patients suffered from moderate pain and that this pain was not adequately managed in a substantial group of patients. The PMP proved to be effective in reducing patients’ pain intensity and decreased the percentage of patients with substantial and intolerable pain with approximately 10%. Reduction in pain intensity during hospitalization could be predicted by patients’ pain intensity scores at the first interview, the intervention (PMP), patients’ emotional and role functioning, and the extent to which nurses were informed about patients’ pain. It can be concluded that the PMP is effective in achieving a decrease in patients’ pain.

A frequently heard remark about research findings is that these results are often not applicable in clinical practice. In order to determine whether this was also the case for the PMP, a follow-up study is described in Chapter 7, in which daily pain assessment was implemented in clinical practice.

Results show that nurses carried out daily pain assessment in at least 75% of the patients during the first five months of the intervention period; in the remaining two months professional compliance gradually decreased to 59%. Both nurses and physicians were positive about daily pain assessment and wanted to continue with it. The level of nurses’ and physicians’ knowledge about pain and pain management was moderate. The pain education program increased nurses’ knowledge and satisfaction about the quality of pain treatment. Based on this follow-up study it can be concluded that implementation of daily pain assessment in a clinical setting is possible. Moreover, the beneficial effects of the program on nurses’ knowledge and attitude have been demonstrated.

Chapter 8 presents the main conclusions of the studies and a discussion. This thesis showed that institutionalizing nursing pain management procedures through daily pain assessment and pain education is worthwhile. Based on these results hospitals are recommended to implement the PMP in clinical practice.