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Pain Awareness among Nurses at Nairobi Women's Hospital, Nairobi, Kenya

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Background: Inadequacies in the management of pain may not be tied to myth and bias associated with general attitudes and beliefs, but reflect the fact that there may be inadequate knowledge on pain. **Purpose:** The purpose of this study was to establish if education provided after registering with a professional body and clinical experience influence nurses' awareness of pain. **Design:** Two groups of nurses were assessed to measure their knowledge base using a pain knowledge survey of 20 true/false statements. These statements were incorporated in a self administered questionnaire that also addressed lifestyle factors of patients in pain, inferences of physical pain, general attitudes and beliefs about pain management. **Method:** One hundred questionnaires were distributed; 86 nurses returned the questionnaire giving a response rate of 86%. Following selection of the sample, 72 nurses participated in the study: 35 hospice/oncology nurses (specialist) and 37 district nurses (general). Data were analysed using SPSS. **Results:** The specialist nurses had a more comprehensive knowledge base than the general nurses; however, their knowledge scores did not appear to be related to their experience in terms of years within the nursing profession. **Conclusion:** Whilst educational programmes contribute to an increase in knowledge, it would appear that the working environment has an influence on the development and use of this knowledge. It is suggested that the clinical environment in which the specialist nurse works can induce feelings of reduced self-efficacy and low personal control. To ease tension, strategies are used that can result in nurses refusing to utilize their knowledge, which can increase patients' pain.

Keywords: Education, Knowledge, Nurses, Pain, Palliative Care, Practice.

INTRODUCTION

Previous studies have indicated how practice is often led by myth and bias rather than evidence-based knowledge. Myths include misconceptions about the pharmacological treatment of pain (Brockopp et al. 1998), exaggerated risks of opioid addiction and respiratory depression (Brockopp et al. 1998), patient tolerance (Ferrell et al. 1993), misconceptions in relation to treatment of older patients (Closs 1996, Yorke et al. 2004) and children (Kart et al. 1997, McCaffery&Pasero 1999) and disbelieving the patients' pain reports (Walker 1994, Seers & Friedli 1996, Bostrom et al. 2004).

Reliance on such practice and ritual often results in ineffective pain management and unnecessary suffering (Adriaansen et al. 2005). Hamilton and Edgar (1992) argue that most studies concentrate on postoperative pain or malignant disease and identify attitudes and beliefs as an

explanation of ineffective pain management, rather than lack of knowledge.

Consequently, Hamilton and Edgar (1992) adapted the pain knowledge and attitude survey by McCaffery (1989) to examine nurses' knowledge and understanding of the physiological/pharmacological aspects of pain assessment and management, a direct contrast to isolating attitudes and beliefs of nurses. The results of the study indicated that nursing staff had incorrect or incomplete knowledge regarding basic concepts and principles in the areas of:

- Differences between acute and chronic pain;
- True risks of addiction;
- Duration of the action of analgesia;
- Equivalent doses of analgesia.

The authors concluded that inadequacies in the pain management process may not be tied to myth and bias originating from general attitudes and beliefs, but reflective of inadequate pain knowledge. King (2004) identified how nurses confirm that they have an inadequate understanding of pharmacology and claim they are not satisfied with the educational experience, leading to feelings of apprehension following qualification from training college. The nurses recognized that they needed pharmacological knowledge to fortify their practice of patient assessment, nurse prescribing and drug administration. Fothergill-Bourbonnais and Wilson-Barnett (1992) conducted a comparative study involving hospice and Intensive Care Unit (ICU) nurses to identify and compare:

- Perceived adequacy of knowledge base;
- The acquisition of knowledge pertaining to theoretical and pharmacological/non-pharmacological aspects of pain and its management.

All the nurses were defined as knowledgeable as a consequence of having more than three years post-registration experience in their respective specialist field. Both groups were seen as professional nurses managing pain in the critical or chronic stage.

The results indicated that, although the self-assessment performance ratings of the hospice nurses were higher than that of the ICU nurses, both groups confirmed a reduced knowledge in specific content areas.

The participants in general were not confident about their knowledge of analgesia and proposed that their basic nurse education had failed to prepare them adequately to care for patients in pain. Fothergill-Bourbonnais and Wilson-Barnett (1992) concluded that it was the working environment and clinical work undertaken within the specialist setting that was alleged by the nurses to be most influential in their acquisition of knowledge about pain management. Further, it was proposed that it was the Hospital/ hospice environment that was perceived to have a greater influence in contributing to the nurses' knowledge base.

EFFECTIVENESS OF PAIN EDUCATION FOR NURSES

Adriaansen et al. (2005) describe the results of a study that reflected the effect of a post-qualification course in palliative care on the development of knowledge and self-efficacy for two groups of nurses, Registered Nurses (RN) and Licensed Practical Nurses (LPN). Pre- and post-course tests for knowledge and self-efficacy using the self-efficacy instrument for palliative care (SEP) were conducted.

Because of the trouble in approaching patients with poor prognosis, practice success was determined by measuring the participants' satisfaction and knowledge scores. The course involved regular reflective meetings with supervisors to discuss the practitioners' own attitudes and progress in executing change in the practice setting.

The study used written assignments to show the nurses' knowledge and acquired competencies, as the authors suggested that these evaluated the quality of palliative care given by the Registered Nurses (RN). The emphasis of the reflective sessions focused on practical ways of improving care and involved discussion of the obstacles to care delivery. The RNs demonstrated an increase in knowledge, but the greatest improvement was noted in their SEP score.

The LPNs confirmed a greater improvement in the knowledge and insight test; however, significant increases in their SEP score did not occur as a result of the educational input.

It is of note that the LPN's SEP score was higher than that of the RN's at the start of the course. The conclusion was that palliative care courses could make a significant contribution to nurses' knowledge and insight, as well as their self-efficacy in providing palliative care. This begs the question as to why there is a theory/practice divide that results in patients experiencing pain if the nurses feel that education and clinical experience increase their knowledge base and self-efficacy.

EFFECTIVENESS OF PAIN EDUCATION FOR PATIENTS

Wallace (1997) maintains that only a few studies have concentrated on evaluating the effectiveness of pain education, with most focusing on practice in terms of assessment or completion of documentation.

Adriaansen et al. (2005) propose that the impact of palliative care courses on pain management is not well documented. Moreover, the evidence that does exist suggests that the effects on improving practice are poor.

Brown (2000) analysed the effects of a pain management project and identified that, whilst the pain knowledge scores for staff were comparable with national averages, they did not represent an acceptable level of knowledge and understanding for optimal pain management. Following the introduction of the project, the nurses' scores for the knowledge and attitude survey increased and the patients' survey identified high levels of satisfaction with care.

However, the patients continued to report that they were experiencing unrelieved pain of a moderate intensity. Brockopp et al. (1998) suggest that, despite educational efforts to increase knowledge base, a concomitant change in practice has not occurred.

Similar results were identified by Innis et al. (2004), who examined the impact of pain education for practitioners on patient satisfaction. Although the nurses' pain knowledge marks increased and their practice of documenting patients' pain marks improved, the medical patients in the study did not express lower levels of pain.

This was despite expressing an increased satisfaction with the service. The explanation for this observation suggests that the results reflect inadequate, ineffective pain control in the hospitals, with patients believing that the staff are doing all that they can to relieve their suffering.

Bostrom et al. (2004) provide evidence to support this explanation stating that, as interventions fail to address the problem, patients lose confidence in the practitioners and cease to believe that pain relief is attainable.

Bostrom et al. (2004) determine that patients perceive that the critical factors in increasing pain levels are not having their pain assessed and not being believed.

OVERVIEW OF STUDY

This study will partly replicate the studies of McCaffery (1986) and Hamilton and Edgar (1992).

However, Hamilton and Edgar selected their sample of nurses from the general population, this did not lend itself to a comparative study as differences in clinical background could not be identified. Fothergill-Bourbonnais and Wilson-Barnett (1992) compared two groups of nurses from specialist clinical areas who were defined as specialists in pain management, making it difficult for comparisons to be drawn between the groups.

The aim of this study was to consider the responses of two groups of nurses from different clinical backgrounds to establish whether there is a difference in the knowledge base because of clinical experience and post-basic education.

The intention of this study was to compare two groups of expert nurses. The hospice/oncology nurses are defined as expert nurses because of their post-basic education and clinical experience (Fothergill-Bourbonnais & Wilson- Barnett 1992).

However, their focus and concentration on pain management, identifies them as specialists within this field (expert specialists). The second group was comprised of general nurses, primary care-based nurses who are often team leaders and largely responsible for caseload management.

They are also defined as expert nurses because of post-basic education and clinical experience (Fothergill-Bourbonnais & Wilson-Barnett 1992), but their focus and concentration on a wide range of nursing skills and clinical interventions makes them generalists within the nursing profession (expert generalists), who engage in pain management.

Selecting two groups of expert nurses, who have undergone post-registration education, allows a meaningful comparison in terms of clinical experience and level of education. The identifiable differences between the two groups should be the type of clinical experience and focus of their knowledge base and should afford the study the opportunity to identify if these two factors influence knowledge levels.

SAMPLE SIZE AND DATA COLLECTION

Contributors

One hundred questionnaires were distributed and 86 nurses responded, giving an 86% response rate. The nurses were selected for their willingness to participate. The group was stratified to include equal numbers of:

- Hospice/Oncology nurses (specialist);
- General Nurses.

The hospice/oncology nurses were identified as one group because they both deal with patients in pain on a daily basis and all had attended post-registration pain and pain management courses. It is acknowledged that one group of nurses' care for individuals with various life-threatening conditions in the terminal stages, whereas the other group cares for individuals with a diagnosis of cancer, during all stages of their illness.

Any participants with less than three years post-registration experience within their field of expertise were excluded from the study (Fothergill-Bourbonnais & Wilson-Barnett 1992). All of the specialist nurses had attended post-registration pain or pain management courses. Any of the general nurses identifying that they had completed courses including modules relating to pain were excluded from the study in an effort to ensure that their pain knowledge was limited to their pre-registration education.

Of the 40 questionnaires returned by the specialist nurses, five were excluded because the participants had fewer than three years experience in their field of expertise. Of the 46 questionnaires returned by the general nurses, six were excluded because the participants had fewer than three years experience in their field of expertise and three because they

identified that they had attended specific courses/programmes on pain and pain management.

The titles given to the participant groups reflected the differences attributable to the focus of their practice and the completion of specific pain and pain management courses, rather than an inference that the hospice/oncology nurses were expert in dealing with pain. This sample allowed for a meaningful comparison in terms of the level of clinical experience and education, with identifiable differences in the type of clinical experience and the focus of the knowledge base.

Materials

The self-administered questionnaire was a revised version of the 20 true/false statements taken from a pain survey devised by McCaffery's (1986) pain knowledge and attitude survey and revised by Hamilton and Edgar (1992). This was designed to measure nurses' knowledge in relation to physiological / pharmacological aspects of pain assessment and management. The participants were asked to circle a true/false response of their choosing for each of the statements.

Design

The knowledge survey was one of four sections within a questionnaire that considered knowledge, lifestyle factors of patients in pain, inferences of physical pain, general attitudes and beliefs about pain management. It was piloted using six experienced nurse lecturers, representing the four different branches of nursing (adult · 2, child · 2, learning disability · 1 and mental health · 1) because the scenarios/vignettes included patients/clients of all ages, different ethnic backgrounds and with varying physical and psychological needs. They were asked to comment whether the questions reflected current research and published authorities' attitudes, based on their knowledge of pain and pain management.

The participants were informed that the intention of the questionnaire was to identify the knowledge base and attitudes of nurses to pain management. The instructions stressed that they should answer the questions as truthfully as possible and refrain from referring back to previous questions or making use of additional information, e.g. books, Internet or each other to obtain a correct response. Details of the participants' age, sex, nursing qualifications, nursing experience (in years) and completion of previous courses, including modules specifically relating to pain and pain management were requested. Any participants with fewer than three years experience within their field of expertise were excluded from the study.

Procedure

The Local Research and Ethics Committee for the hospital approved the questionnaire. The written instructions on the front sheet of the questionnaire emphasized that the responses would remain anonymous and that the participants should complete the questionnaires individually, refraining from co-operating in their answers. Fifty questionnaires were allocated to the hospice/oncology nurses (specialist) and 50 to the General Nurses.

The respective senior nurses explained the instructions to the prospective participants and distributed the material by leaving the questionnaires in the staff room office. The participants were self-selecting, based on their willingness to participate and completed the questionnaires alone, then posted their responses in a sealed designated box in the staff

room office. The questionnaires were collected after two weeks by the researcher.

Scoring procedure

Eighty-six questionnaires were returned, 14 participants were discontinued from the study, leaving 72 questionnaires to be scored. Correct responses for the true/false choice was given a score of one, incorrect responses, zero, making the possible maximum score of 20. The participants score was then divided by the maximum score and multiplied by 100 to give an overall percentage rating.

DATA ANALYSIS AND RESULTS

Descriptive and inferential statistics were used to analyse the data. *Table 1* demonstrates that the specialist nurses obtained a higher mean score than the general nurses by identifying more correct responses on the pain knowledge questionnaire. The pain knowledge scores for the specialist nurses were compared with the general nurses' pain knowledge scores using a Mann-Whitney U-test. A significant difference was found between the two groups of nurses' knowledge scores (*Table 2*).

Table 3 illustrates the nursing experience in years expressed as a mean score for both the specialist and general nurses. The mean scores were compared using a t-test to establish if there was a difference in the experience between the two groups.

There was no significant difference in the nursing experience in terms of years for the specialist and general nurses.

Spearman's rho, a test of rank correlation, was used to establish whether there was a relationship between the number of years in nursing and knowledge scores for the general nurses and specialist nurses as one group.

The results indicated that a positive correlation exists between nursing experience in years and pain knowledge scores, for the specialist and general nurses as one group. This suggests that there is a corresponding increase in knowledge scores as the nurses' experience in years increases (*Table 4*).

The specialist and general nurses' pain knowledge scores were correlated with their experience in nursing years as separate groups using Spearman's rho (*Table 5*). The results established that there was no relationship between the specialist nurses' pain knowledge scores and their nursing experience in years (*Table 5*).

However, a positive correlation was found for the general nurses, suggesting that as the general nurses experience increases, there is a corresponding increase in knowledge scores (*Table 5*).

Table 6 offers details of the gender status, age range and mean age of the participants.

A t-test was used to compare the mean ages of the specialist and general nurses in order to establish if there was a difference between the two groups.

No significant difference was found, suggesting that a cohort effect did not appear to be influencing the findings. The gender status of the participants appeared to be very similar for both groups.

DISCUSSION

The questionnaire considered the nurses' knowledge of pain using questions that embraced a broad knowledge base

related to pharmacology, theories of pain and general pain management. The difference noted between the specialist nurses and the general nurses' knowledge scores suggests that the specialist nurses had a more comprehensive knowledge base than the general nurses.

This study used the same pain knowledge test as Hamilton and Edgar (1992), which identified that the mean score for both groups of nurses was 63.9%. They identified lack of pain control knowledge as the main factor in the nurses' managing pain ineffectively. It was concluded that a score of 63.9% or lower constitutes a poor knowledge score, therefore, it is reasonable to propose that the general nurses demonstrated a poor knowledge of pain management.

Equally, it is argued that the specialist nurses mean score of 79.4% indicated a 'good' knowledge of pain. The difference in knowledge scores identified between the two groups was expected, because of the specialist nurses' educational and clinical experiences.

However, this observation begs the question as to whether it is the working environment or the educational experience of the specialist nurse that determines their superior knowledge base.

On first inspection, it would appear that the difference between the pain control knowledge scores is attributable to the educational differences that exist between the two groups of nurses, rather than the clinical experiences.

All of the specialist nurses participating in the study had attended at least one post-registration course or study day devoted to the subject of pain management. Whilst the specialist nurses had the advantage of post-registration education on pain, the general nurses' formal education appeared to be restricted to their pre-registration programme.

Fothergill-Bourbonnais and Wilson-Barnett (1992) and King (2004) determined that nurses were not confident about their knowledge of analgesia. They suggested that their basic nurse education had not adequately prepared them to care for patients in pain.

All the participants had a minimum of three years post-registration experience in their field of work, hospice/oncology or general nursing. There was no significant difference in the participants' nursing experience in terms of years of employment. This strengthens the argument that education leads to an increase in knowledge scores.

In contrast, Harrison (1991) argues that experienced nurses are more accurate in pain assessment, an indication that training and work experience has made them more skillful in interpreting the relevant cues that lead to effective pain management. Fothergill-Bourbonnais and Wilson-Barnett (1992), proposals support this suggestion that the working environment and clinical experience following qualification is the most influential factor in contributing to pain care knowledge.

Evidence to support Harrison (1991) and Fothergill-Bourbonnais and Wilson-Barnett (1992) is found in the positive correlational relationship between the knowledge scores and experience when the nurses were considered as one group. However, when the nurses were considered as separate groups, it was noted that the relationship existed for the general nurses' experience and knowledge scores, rather than the specialist nurses (*Table 5*).

The educational and clinical experience should reinforce each other; with the academic experience offering opportunity to increase a nurse's knowledge base and the clinical environment, allowing them to consolidate academic learning and establish the links between theory and practice.

Table 1. Pain knowledge scores for the specialist and general nurses expressed as a total mean score, mean score as percentage and standard deviation.

N	Mean score	Mean score (%)	SD
Specialist	35	15.286	79.42
General	37	12.568	64.86

Table 2. Comparison of the specialist and general nurses' responses for the pain knowledge survey using a Mann–Whitney U-test

U	Z	P
269	-4.307	0.01

Table 3. Nursing experience in years expressed as a mean score for both the specialist and general nurses and comparison by t-test

	N	Mean	SD	t	d.f.	P
Specialist	35	17.3429	8.3769	1.683	70	NS
General Nurse	37	14.1892	5.5197			

Table 4. Correlation of the pain knowledge scores and number of years in nursing for the general nurses and specialist nurses as one group using Spearman's rho

P	P
0.412	0.01

Table 5. Correlation of the pain knowledge scores and number of years in nursing for the general nurses and specialist nurses as individual groups using Spearman's rho

	N	P	P
Specialist Nurses	35	0.491	NS
General Nurses	37	0.578	0.01

TABLE 6. Gender status, age range and mean age for the specialist and general nurses with a comparison of ages using a t-test

	Age Range	Male	Female	Mean Age	SD	T	d.f.	p
Specialist	25–49	2	33	35.2857	6.7560	0.460	70	NS
General	26–54	6	31	36.0810	8.1353			

This could explain the correlation between the experience and knowledge score for the general nurses who may have received 'ad-hoc' education from various sources such as drug companies or peers.

However, there may be something within the specialist nurses' clinical experience that disrupts this development, thus offering an explanation as to why a practice theory gap is evident in the management of pain.

All attitudes have three dimensions: cognitive, affective and behavioural (Secord & Blackman 1964).

Although the components are interrelated, they are not necessarily interdependent; i.e. the attitude expressed (cognitive) or felt (affective) is not always congruent with the actions (behaviour) that an individual displays.

This proposal would in part explain the theory-practice divide identified by the evidence that suggests educational efforts to increase knowledge have failed to demonstrate a

concomitant change in practice (Brockopp et al. 1998, Adriaansen et al. 2005), resulting in unnecessary patient suffering and dismissal of the pain experience (Brown 2000, Bostrom et al. 2004, Innis et al. 2004).

However, this explanation is too simplistic as it falls short of offering an explanation as to the cause of the incongruence between the three components and fails to address the complex nature of the problem.

Bandura (1997) highlights that our sense of self-efficacy influences our sense of personal control.

When estimating the chances of success or failure of a particular behaviour, consideration is given to the evaluation of the effects of a given course of action for the individual and others.

Those nurses with a strong sense of self-efficacy show less psychological and physical strain.

A high sense of self-efficacy is the necessary perception for a nurse with responsibility for managing patients' pain. However, goals that cannot be achieved or lie outside of the individual control may engender feelings of low self-efficacy. The consequence of this may be a sense of learned helplessness, leading to a situation whereby the individual fails to exert control in situations where success is possible.

It is important to highlight that learned helplessness and low self-efficacy are not always the inevitable outcome of being exposed to negative uncontrollable situations. It is the perception of the individual that serves to define the sense of self-efficacy.

Nurses are likely to be confronted with demands that they may not encounter in the clinical environment. This may be because of pain that is difficult to manage or as a result of lack of control over pain management decisions, in particular medication (Field 1996, Brockopp et al. 1998).

Nurses have the knowledge that their patients are in pain, but are often limited in their ability to manage the patient's experience.

Evidence suggests that denial and mismanagement of patients' pain is a part of the nurse's daily experience (Walker 1994, Seers & Friedli 1996, Brockopp et al. 1998, Brown 2000, Bostrom et al. 2004).

This would suggest that members within the subculture of the clinical setting are likely to have expectations of others in relation to the acceptability or appropriateness of both the nurse and patient's behaviour (Davitz & Davitz 1985, Wakefield 1995, Salmon & Manyande 1996).

This expectation and transmission of cultural values and beliefs is reinforced via the process of Social Learning (Bandura 1986). This results in colleagues exerting social pressure to ignore and disbelieve patients' reports of pain and conveying this message in their actions as 'role models' (Davitz & Davitz 1981). Consequently, the nurses' appraisal of self-efficacy and sense of control is likely to be low; even when there is every chance of a successful outcome.

Nurses may have a sound knowledge base, but this can be challenged by a state of tension brought about by the perception that they have no control over the situation.

This then generates a state of cognitive dissonance (Festinger 1957) that necessitates the nurse trying to ease the disequilibrium by changing or adding an extra cognition.

As a result, the nurse may deny their knowledge base or resort to the use of defence mechanisms such as reaction formation, denial, rationalization and intellectualization (Gross 1999), used to distance the nurse from the situation.

The behaviours that arise from this process would serve to increase cognitive dissonance and may result in an increase in patients' pain (Walker 1994, Wakefield 1995, Brockopp et al. 1998, Brown, 2000). Bostrom et al. (2004) argue that patients perceived that the critical factors in increasing pain levels were not having their pain assessed and not being believed. This would influence future evaluations of behavioural outcomes and contribute to the development of a self-perpetuating cycle that is instrumental in acculturating student nurses or nurses new to the clinical setting. The outcome of this process is a reduction in the intention to perform effective pain management behaviours; unfortunately, this in turn will generate situations that serve to increase the nurse's perception of low self-efficacy, learned helplessness and external locus of control.

This study could help explain the actions of the nurses in the study conducted by Adriaansen et al. (2005). They identified that the RNs began to feel more competent following the educational course, as indicated by their SEP score.

However, it was noted that the participants that withdrew from the course, felt more competent than those who completed the course. It could be argued that the extra knowledge and reflective exercises served to highlight the obstacles confronting the RNs and increased the feelings of learned helplessness and cognitive dissonance that then led to the overall feelings of low self efficacy when compared with those who did not complete the study.

The LPNs identified that they felt more competent than the RN's at the start of the course and failed to demonstrate a significant increase following educational intervention.

This result might reflect the fact that they defined themselves as experienced practitioners and, therefore, were expected to be competent. This supports the proposal of Bandura (1997) that it is the perception of the individual that serves to define the sense of self-efficacy. Although it could be argued that the LPNs were not directly responsible and accountable for the patients' pain experience and as such did not experience the sense of learned helplessness and cognitive dissonance, they also did not attend the reflective workshops.

REPERCUSSIONS FOR PRACTICE

The changing face of health care demands that all nurses are better educated and encouraged to be reflective, evidence-based practitioners rather than handmaidens of care. Clinical supervision and the use of reflection to analyse practice may all serve to increase the nurses' awareness of practice and self.

However, increasing the specialist nurses' awareness of pain management, may only serve to increase the conflict felt by the nurse who is confronted with a situation that they feel that they cannot deal with. Without power and autonomy to make decisions and affect change, feelings of helplessness, reduced self-efficacy and cognitive dissonance are likely to increase.

In the past, nurses followed the instructions of doctors in a task-orientated approach, often without the underpinning knowledge or realization of responsibility and accountability.

Educating nurses and highlighting accountability may not only cause conflict between doctors and nurses (Brockopp et al. 1998), but also add to the feelings of helplessness that may ultimately lead to ineffective patient care (Walker 1994, Seers & Friedli 1996).

Adriaansen et al. (2005) argue that nurses have the ability to reflect on their own professional practice and are capable of evaluating whether their attitudes and actions are congruent with professional norms and patient needs.

This is commendable, but only if the professional norms are in agreement with the needs of the patient (Walker 1994, Seers & Friedli 1996), if patients feel able to express their needs (Brockopp et al. 1998, Bostrom et al. 2004) and if nurses believe them when they do (Walker 1994, Bostrom et al. 2004).

Brockopp et al. (1998) raise the issue that the barriers to effective pain management are more complex than a lack of knowledge on the part of the health care providers, suggesting that education is not adequate when inappropriate behaviours are maintained by attitudes, social and structural problems.

As the nurses' and doctors' role become less defined and there is a transfer of responsibility and accountability, it is essential that resources are made available to allow the nurse to address the problems.

Only then will there be an improvement in patient care and an end to unnecessary suffering by both patients and nurses.

Innis et al. (2004) advocate the need for health practitioners to be held responsible for the assessment and management of pain and call for a cultural shift in the institutions to include a Multi disciplinary team approach.

Moreover, Brown (2000) argues that educational approaches must be accompanied by interventions in care systems that directly influence the routine behaviours of clinicians, including the breaking down of barriers within the multidisciplinary team, implementing comprehensive pain management programmes that are evaluated and encouraging trainers to act as role models.

It is crucial that these 'role models' do not acculturate the nurses into a subculture that operates with actions that lead to ineffective care.

For health practitioners to be held responsible for the assessment and management of pain, there should be a cultural shift in health facilities to include a multidisciplinary team approach.

Moreover, Brown (2000) argues that educational approaches must be accompanied by interventions in care systems that directly influence the routine behaviours of clinicians, including the breaking down of barriers within the multidisciplinary teams, implementing comprehensive pain management programmes that are evaluated and encouraging trainers to act as 'role models'. It is crucial that these 'role models' do not draw the nurses into a culture that operates with actions that lead to ineffective care.

LIMITATIONS

It is important to note that the study sample was small and limited to a specific group of nurses who were self-selecting. It has to be acknowledged that the general nurses may have received relevant educational input as part of a module within their nursing/community nursing programmes. Although it did not appear to affect their overall knowledge scores. Any of the general nurses identifying that they had completed courses/programmes, including modules relating to pain, were excluded from the study. It is difficult to control exposure to 'ad-hoc' education for the general nurses from sources such as drug companies.

However, it could be argued that this input tends to be restricted to the medicines, appliances and products that the district nurse can either prescribe or are instrumental in recommending to the doctor for prescription. It usually does not extend to narcotics or alternative drugs used in the management of pain. In addition, the discussion of the findings relies on previous research findings to explain the absence of a correlational relationship between the specialist nurses' knowledge scores and nursing experience.

CONCLUSION

The limited findings of this small study, in conjunction with previous research findings suggests that the specialist nurses would appear to have a more comprehensive knowledge base in relation to physiological/pharmacology aspects of pain and pain management than the general nurses within this study. Although it is clear that educational programmes have contributed to an increase in knowledge scores, it is important to establish what affect the working environment has had on the development of this knowledge base.

The high knowledge scores obtained by the specialist nurses did not appear to be related to their experience in terms of years within the nursing profession. The general nurses' knowledge scores were lower overall, but increased as they

became more experienced in nursing, despite the lack of formal education. An explanation for these findings is that the clinical environment in which the specialist nurse works may induce feelings of reduced self-efficacy and low personal control, this then leads to feelings of learned helplessness and the development of an external locus of control.

A state of cognitive dissonance may occur as a result of the conflict that arises from the nurses increased knowledge base and experience of having to deal with patients' unrelieved pain. To ease the tension, strategies are adopted to allow the nurse to survive within the system; these are only useful for defending and ignoring the stressor for a short time and are not effective ways of coping with the stressful situations.

COMPETING INTEREST

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTION

SJ conducted the extensive literature review. AZ conceived of the study, and participated in its design and coordination and helped to draft the manuscript. OS participated in the design of the study. All authors read and approved the final manuscript

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