

Coping Strategies Used by Nurses with Low Back Pain in a Tertiary Hospital in North Central Nigeria

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Abstract

The study aimed to determine the factors that contribute to low back pain and the coping strategies used by nurses with low back pain in a tertiary hospital in North Central Nigeria. A hospital-based, cross-sectional study was conducted with structured questionnaires administered to 204 randomly selected, eligible, consenting nurses between August-November 2011. Data was obtained for sociodemographic details, Wong-Baker Faces (WBF) Pain Scale, and Work Ability Index (WAI). Results were analyzed using SPSS version 21 statistical software. Results indicated that, working in the same position, lifting or transferring dependent patients, treating excessive number of patients and not having enough rest/break were perceived to be the commonest factors significantly contributing to low back pain severity. However, 'treating excessive number of patients' was two times more likely to be associated with severe low back pain. The significant coping strategies in those with less severe pain were: getting help from someone to handle heavy patients, modifying a nursing procedure, warming up or stretching before nursing activities, adjusting the plinth/bed height and taking pain relieving drugs. However, getting someone to help to handle heavy patients was three times more likely to occur in those with less severe back pain. Nurses with low back pain adopt a variety of non-standardized problem-focused coping strategies. This calls on physicians managing low back pain among health workers to know common factors contributing to low back pain among nurses and the coping strategies they often adopt. Health institutions should be encouraged to implement policies that would improve the working conditions of nurses which will enable them to be more productive.

Keywords

Low Back Pain, Coping, Nurses, Workplace, Risk Factors

1. Introduction

Nurses, while conducting professional activities, are exposed to strain on the spine. This can result in work aversion, discomfort, and frequent low back pain. Numerous factors have been found to increase nurses' risk of back pain. Physical load and work posture play a role, as do psychosocial factors such as personality and psychosomatic symptoms. [1] Work tasks and work organizational factors have been shown to be significant in individual studies, although when all trials are considered, the evidence is

inconsistent. [1]

A study reported from a Thailand public hospital revealed that, moving patients in bed without assistance and lack of back muscle exercise were the most significant risk factors causing LBP in nurses. [2]

Omokhodion et al had studied staff in a rural hospital in south west Nigeria, and reported that heavy physical work, poor posture, and prolonged standing or sitting were the most frequent activities associated with LBP among these workers. [3] Similarly, Tinubu et al in their study on work-related musculoskeletal disorders among nurses, found that working in the same position for long periods, lifting or transferring

dependent patients were the most perceived risk factors for work related musculoskeletal injury. [4]

A random sample of 270 registered nurses was selected from two acute care hospitals in central Illinois to identify work-related low back pain (WRLBP) risk factors. Among the risk factors significantly associated with WRLBP were more years worked in nursing, frequent lifting, and low social support. Only 11% reported that they routinely used mechanical lifting devices, and the primary reason given for failure to use lifting equipment was unavailability of equipment. [5]

The work place factors identified as contributing to LBP in both local and international studies seems similar namely frequent lifting/transferring of patients, assuming same position while on duty and unavailability of lifting equipment.

Of interest is how nurses cope with workplace stressors based upon country of origin. In a series of research studies involving hospital nurses, it was found that although nurses identified the top two stressors to be the same, regardless of country, there were variations in coping methods adopted. [6-11]

Some research has suggested coping strategies that are more problem-focused, rather than emotion-focused, tend to be associated with better mental health when dealing with workplace stress. [9, 12] However, this finding tends to occur more often in Western cultures rather than in Asian cultures, where emotion-focused strategies were positively associated with mental health. [7, 13] Caldwell and Caldwell therefore suggest using behavioral and administrative strategies fully before considering pharmacologic aids since these stimulants and sedatives can be addictive and questions remain about their safety and effectiveness for long-term use. [14]

In a previous Nigerian study conducted by Tinubu et al, out of the nine coping strategies used by nurses, getting help in handling heavy patients (50.4%), modification of nursing procedures to avoid re-injury (45.4%), and modifying patient's/nurse position (40.3%) were the top three coping strategies used by nurses. [4]

Pain itself is an internal, subjective experience that cannot be easily directly observed by others or using physiological markers or bioassays. Therefore, pain assessment relies largely upon the use of self-reports. Much effort has been invested in testing and refining self-report methodology within the field of human pain research. [15-17] Quantifying pain provides a measure of assessing the effectiveness of treatment and helps when assessing the behavior of the patient's pain. It provides a baseline from which to work and can be used to compare pain episodes.

The validity and reliability of various measures of pain have been extensively researched in Europe, America and Asia in contrast to Africa where it is hard to find literature supporting existence of locally developed outcome measures. [18] Assessment of back pain is made easier by using scales to measure the severity (intensity) of the pain. Pain scales are a convenient, easy and quick way of determining changes in the patient's symptoms. [19]

Pain scales commonly used in Western society are the Verbal Rating Pain Measure and the Visual Analogue scale. A scale which has in the past, been mostly used for children, is the Wong-Baker Faces (WBF). It is easy to understand and can be used for children, adults and for subjects with low educational levels. [20] Kim and Buschmann in 2007 supported the appropriateness of using the WBF Pain Scale in older adults as well as in children, to measure pain intensity. [21] The WBF Pain Rating Scale is a pain scale that was developed by Donna Wong and Connie Baker. The scale shows a series of faces ranging from a happy face at 0, "No hurt" to a crying face at 10 "Hurts worst". The individual must choose the face that best describes how they are feeling. [21]

This article endeavours to identify the factors contributing to low back pain and coping strategies used by nurses with low back pain in order to proffer measures that will ameliorate this condition and ensure a more productive nursing work-force.

2. Materials and Methods

Ethical approval was obtained from the Ethics committee of the Hospital.

A cross-sectional comparative hospital-based study was carried out with semi-structured questionnaires administered to 204 randomly selected, eligible consenting nurses between August-November 2011. The instrument for data collection was a semi-structured questionnaire which was validated by a jury of experts involved in the management of back pain (an orthopedic surgeon, a family physician, a nurse and a physiotherapist). Information was obtained on socio-demographic factors including: age, sex, religion and marital status; occupation and workload, coping strategies for LBP. Nurses' perceptions of job risk factors that had contributed to the development of their LBP and coping strategies taken towards reducing risk for development of LBP were evaluated.

Coping strategies were assessed using the questionnaire formatted by Tinubu et al on work related musculoskeletal disorders among nurses in Ibadan. [4]

The data was analyzed using SPSS version 21. Chi-square was used to determine significant factors contributing to LBP severity and the significant coping strategies used. Multivariate analysis was used to identify the extent to which significant factors contributed to the severity of back pain and to identify the coping strategies which significantly ameliorated the back pain. A confidence interval of 95% was used in this study and a P value of less than 0.05 was considered significant.

3. Result

3.1. Socio-demographic Characteristics of Respondents

A total of 204 nurse respondents had valid questionnaires, 28 (13.7%) males and 176 (86.3%) females, with age range from 22 to 53 years and mean age of 42.8 ± 8.5 years. Details

are shown in Table 1

Table 1. Socio-demographic characteristics of respondents.

Variable	Frequency	Percent %
Gender		
Male	28	13.7
Female	176	86.3
Religion		
Christianity	196	96.1
Islam	8	3.9
Educational qualification		
* RN	19	9.3
**RNM	115	56.4
***OAQ	70	34.3
Years at work (years)		
<10	54	26.5
> 10-20	65	31.9
>20-30	76	37.3
> 30	9	4.4

Variable	Frequency	Percent %
Engaging in Leisure activities		
No	51	25
Yes	153	75

* RN = Registered Nurse ** RNM = Registered nurse midwife ***OAQ = other additional qualifications (B.Sc. Diploma etc)

3.2. Prevalence of Low Back Pain

The prevalence of low back pain among nurses in this study was 70.1%. Other details had been previously published. [22]

3.3. Factors Contributing to Low Back Pain

Results indicated that the significant factors perceived to contribute to low back pain (LBP) were: working in the same position, lifting or transferring dependent patients, treating excessive number of patients and not having enough rest/break ($p < 0.05$). See Table 2.

Table 2. Factors contributing to low back pain.

Contributory factor	Low back pain		p-value
	Less severe WBF score 0-5	Severe WBF score 6-10	
Working in the same position			
No	42	65	<0.0001
Yes	65	32	
Lifting/transferring dependent patients			
No	49	70	<0.0001
Yes	58	27	
Bending/twisting			
No	83	81	0.286
Yes	24	16	
Treating excessive number of patients			
No	46	70	<0.0001
Yes	61	27	
Carrying/lifting/moving heavy materials			
No	92	82	0.462
Yes	15	15	
Manual orthopaedic technique			
No	100	95	0.111
Yes	7	2	
Not enough rest/break			
No	65	78	0.002
Yes	42	19	
Work schedule			
No	92	90	0.09
Yes	15	7	
Awkward position			
No	103	94	0.554
Yes	4	3	

Further multivariate analysis revealed that 'treating excessive number of patients' was two times more likely to be associated with severe lower back pain (OR 2.1, 95%CI 1.09-4.03, $P=0.026$). Other factors were not statistically significant predictors of severe low back pain on multivariate analysis.

3.4. Coping Strategies Used by Nurses with Low Back Pain

The results showed that the significant coping strategies used by nurses with low back pain were: getting help from

someone to handle heavy patients, modifying a nursing procedure, warming up or stretching before nursing activities, adjusting the plinth/bed height and taking pain relieving drugs. Details are shown in Table 3.

Table 3. Coping strategies used by nurses.

Coping Strategies	Low back pain		p-value
	Less severe WBF score 0-5	Severe WBF score 6-10	
Someone helps to handle heavy patient			
No	37	66	<0.0001
Yes	70	31	
Modify nursing procedure			
No	65	79	0.001
Yes	42	18	
Modify patients' position			
No	83	84	0.068
Yes	24	13	
Stop treatment if it causes/aggravate discomfort			
No	98	90	0.479
Yes	9	7	
Warm up/stretch before nursing activities			
No	89	92	0.007
Yes	18	5	
Select techniques that will not aggravate symptoms			
No	87	85	0.148
Yes	20	12	
Adjust plinth or bed height			
No	74	86	0.001
Yes	33	11	
Use different parts of body to ease in procedure			
No	99	91	0.467
Yes	8	6	
Pause regularly to stretch or change posture			
No	83	80	0.243
Yes	24	17	
Take pain relieving drugs			
No	60	72	0.005
Yes	47	25	
See the staff doctor for days off work			
No	102	92	0.563
Yes	5	5	

Further multivariate analysis showed that getting someone to help to handle heavy patients was three times more likely to occur in those with less severe back pain (OR 3.06 95%CI 1.63-5.76, P=0.001). Other coping factors were not significantly related to severity of low back pain.

4. Discussion

Our study determined a high prevalence (70.1%) of LBP among nurses with working in the same position, lifting or transferring dependent patients, treating excessive number of patients and not having enough rest/break as the commonest risk factors. Treating excessive number of patients was two times more likely to be associated with severe lower back pain (OR 2.1, 95%CI 1.09-4.03, P=0.026).

These findings are consistent with a study carried out in South Western Nigeria by Tinubu and Colleagues, and Smith and colleagues which showed that working in the same position, treating excessive number of patients, transferring

or moving heavy equipment were important predictors of low back pain among nurses. [4, 23] Wilkinson and colleagues and Harber and colleagues implicated lifting patients as the most common mechanism for low back pain among nurses. [24, 25] The need to redesign jobs to reduce work-load, provide mechanical lifting equipment and increase staff have been suggested in literature to reduce the work load on individuals for better work-place functioning. [3] However, other authors had shown that mechanical lifting equipment were rarely used by nurses mainly because they were not available. [5] Factors contributing to low back pain in the workplace vary from physical to psychological factors, and it might be difficult to ascertain the extent to which a single factor significantly contributes to low back pain. It would however seem that the workload rather than the type of task was a more significant risk factor in our population of nurses.

The result also showed that the significant coping strategies used by nurses with low back pain were: getting help from someone to handle heavy patients, modifying a

nursing procedure, warming up or stretching before nursing activities, adjusting the plinth/bed height and taking pain relieving drugs. However, multivariate analysis of the significant bivariate factors showed that getting someone to help to handle heavy patients was three times more likely to occur in those with less severe back pain (OR 3.06 95%CI 1.63-5.76, P=0.001), while other coping strategies were not significantly related to severity of low back pain.

These coping strategies were similar to previous findings in a study conducted by Tinubu and colleagues. [4] From their study, getting assistance or support staff in handling heavy patients, modification of nursing procedures to avoid re-injury or stressing an injury, and modification of patient's/nurse position were the top three coping strategies in ameliorating the risk of Work Related Musculoskeletal Disorders. This is also similar to the submission of Lambert and Lambert on methods for fostering effective coping strategies. [26] Workers performing strenuous work are often advised to prevent problems and to cope with musculoskeletal symptoms by changing their working technique, using lifting equipment, taking breaks, and avoiding strenuous work tasks. Caldwell and Caldwell had also suggested the use of personal and administrative strategies fully before considering pharmacologic aids. [14] Our findings indicate that nurses in this cohort were more likely to use problem-focused strategies for coping rather than emotion-focused strategies.

5. Conclusion

Our study indicated that, working in the same position, lifting or transferring dependent patients, treating excessive number of patients and not having enough rest/break were perceived as the commonest factors that contributed to the severity of low back. However, treating excessive number of patients was two times more likely to be associated with severe lower back pain. The significant coping strategies in those with less severe pain were: getting help from someone to handle heavy patients, modifying a nursing procedure, warming up or stretching before nursing activities, adjusting the plinth/bed height and taking pain relieving drug. However, getting someone to help to handle heavy patients was three times more likely to occur in those with less severe back pain

In view of these findings, increased staffing and refresher courses on back care ergonomics should be organized for nurses on regular basis by hospital management. Hospitals should be well equipped with all necessary lifting equipment that will reduce the strain on nurses' back. Further studies should compare the efficacy of problem-focused compared to emotion-focused strategies among Nigerian nurses with LBP.

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