

# INAPPROPRIATE RESTRAINT PRACTICES IN AUSTRALIAN TEACHING HOSPITALS

Kate Irving, PhD, Bsc (Hons) Nursing, RGN, PhD Graduate, Curtin University of Technology, Perth, Western Australia, Research Fellow, University College, Dublin, Ireland

## ACKNOWLEDGEMENT

The author would like to acknowledge the guidance and supervision of Professor Michael Clinton, Curtin University of Technology, Australia.

*Accepted for publication August 2003*

**Key words:** restraint, prevalence, Australia, teaching hospitals

## ABSTRACT

The use of restraints in contemporary healthcare represents an ethical problem to nurses and nursing. This paper describes a point prevalence study undertaken to examine the patterns of restraint use in an Australian teaching hospital. The objectives were: to clearly define restraint; establish its prevalence; the reasons for its use; and, to describe staffing levels in relation to restraint rates. Of the 256 patients who were observed, 9.4% were restrained. A third of the patients aged 85 years and over were restrained. The results support a previous Australian study that reported restraint rates of between 8.5% and 18.5% in acute hospitals.

## INTRODUCTION

Restraint persists as a behaviour management technique for certain behaviours despite over a decade of research showing its limited efficacy (Strumpf et al 1998) and many damaging side effects, for example, new incontinence, new pressure sores, nosocomial infections, falls, contractures, orthostatic hypotension, premature wish to die and a high in-hospital death rate (Parker and Miles 1997; Morrison 1997; Molasitotis 1995; Macpherson et al 1990; Kasper et al 1996). The current paper aims to give a clear definition of that restraint which is inappropriate, and to investigate its use in an acute teaching hospital.

## LITERATURE REVIEW

Few studies on restraint rates in Australian teaching hospitals exist. The studies by Whitehead et al (1997) and Gaebler (1993) are notable exceptions. Furthermore, restraint can be difficult to define and studies have highlighted much disparity in their definition of restraint use and in the identification of restrained patients by registered nurses (Whitehead et al 1997). Several studies limit their definition of restraint to the use of custom made devices (Moss and La Puma 1991; Castle 2000), while another concentrates on the effects of an intervention on a patient's free will (Ewart 1997). These differing definitions make prevalence studies hard to compare. A further definition is aimed at identifying inappropriate restraint use and has influenced the current studies' definition (Powell et al 1989). It focuses on the specific intent with which an intervention is applied. It highlights those interventions that are common and pose significant legal, ethical and professional questions for nursing.

The definition of chemical and physical restraints adapted from the literature for the purposes of the study

was: Any physical treatment or pharmaceutical used with the primary intention of limiting mobility or movement.

For physical restraint, if a lack of mobility was an undesirable constraint of a medical intervention, such as a plaster cast or infusion pump, it was not included as an inappropriate restraint. While a plaster cast does restrain movement, the primary intent of the intervention is bone healing. For chemical restraint, drugs used for anxiety states were not included, unless the anxiety manifested itself in behaviour and a drug was given with the specific intent to prevent this behaviour. There is a thin line between appropriate restraint, when the patient asks for a bedrail to be placed on the bed or when a doctor prescribes a drug to treat an anxiety disorder, and inappropriate restraint where the patient's rights are violated.

Car seatbelts can be considered a restraint, but one would not suggest they were unethical in the same way a straight jacket may be considered unethical. It needs to be clear that there is a mode of restraint that is problematic, and it is this type of restraint that should be addressed in research and practice. Thus, any definition of restraint should facilitate the identification of inappropriate restraint based on intent, not merely count the number of patients who are taken to be restrained according to some pre-specified criteria.

### Prevalence of restraint

Whitehead et al (1997) conducted a point prevalence study in four Australian teaching hospitals and found a prevalence of between 8.5-18.5% restraint between the hospitals surveyed. A study by Gaebler (1994) found that 25% of patients have a restraining order subsequent to an incident report. However, Gaebler's study relied on documentation alone, and it is well established that documentation about restraints is frequently non-existent (Whitehead et al 1997; Kow and Hogan 2000).

Generally speaking, the type of restraint described in the studies definition of inappropriate restraint is unacceptable. However, a further circumstance when restraint use is appropriate is when the patient or another member of the public is in 'real or immediate danger'. This is a legal remedy called 'necessity' but it is unlikely that long-term use of restraints to prevent falls will constitute 'immediate danger' (Lambert 1992).

### Reasons for restraint

Research shows that the most common reason for using restraint is to protect the person from falling (Reith and Bennett 1998). The justification given for using restraint is to: (a) decrease the risk of falls; (b) prevent the patient interfering with their treatment; and, (c) behavioural phenomena (Strumpf et al 1998). There is evidence to suggest that restraints are ineffective when used for these reasons (Strumpf et al 1998; Lofgren et al 1989).

### Problems with restraint

The previous studies found that injurious falls decrease when restraints are removed and that restraints lead to an increase in agitated behaviours. Further reports have identified a number of cases where the use of restraint was a direct cause of death by asphyxiation (The American Food and Drug Association 1992; Paterson et al 1998; Parker and Miles 1997; Miles and Parker 1998; Miles 1996; Anon 1999).

### Restraint reduction

Restraint reduction efforts focus on individualised assessment (Strumpf et al 1998), environmental manipulation, policy change, and nurse education programs (Levine et al 1995; Bradley et al 1995). Nurses' knowledge and skills in the care of patients who typically get restrained in acute care settings is reported to be inadequate (Matthiesen et al 1996; Maruschock 1996; Janelli 1995; Bryant and Fernald 1997) and it is likely that this contributes to the resistance to changing practices.

A restraint-reduction effort with no increase in patient incidents reported that restraint-free care did not require extra staff (Dunbar et al 1997). One study found that a higher ratio of registered nurses to nursing assistants was predictive of higher restraint initiation (Sullivan-Marx et al 1999). Similarly, it has also been shown that restrained patients increase dependence on the nurse and therefore require more nursing care (Morse and McHutchion 1991).

### AIMS

The aim of the present study was to identify the frequency, duration, type and reasons for inappropriate restraint use in an acute teaching hospital and the patient staff ratios at the time of restraint. Inappropriate restraint here is taken to be any restraint which would be classified thus by the study's definition and which would not meet the legal criteria of 'necessity'.

### RESEARCH SETTING

The study was conducted in a 450-bed metropolitan teaching hospital in Australia. Ethical clearance was gained from the university and hospital research ethics committees. The hospital has all major specialties but observations were not carried out in psychiatric, paediatric, intensive care or emergency departments.

### METHOD

Data were obtained from nine wards during one day, and 256 patients were observed. Wards were visited by the researcher, in a random order at random times. Each patient under observation was assessed to determine whether they were physically restrained and their medication charts reviewed for psychotropic drugs. Interventions that could have constituted restraint were clarified with the nurse caring for the patient and

crosschecked with the medical and nursing notes and the responsible medical officer. Where patients met the criteria for restraint, the duration of restraint was calculated from the last time the patient was restraint free. Patient demographics and ward staffing levels were collected at the time of observation.

## Analysis

Data were managed using statistical package for social science (SPSS) and subjected to descriptive statistics. The period of restraint was tested for variance using mean, median and mode, across the restrained population.

## RESULTS

The results showed that on the selected day 24 (9.4%) of the population were restrained according to the study's definition of restraint. The use of restraint increased with age - no patient under 62 years was restrained. All patients who were restrained had a cognitive impairment, either acute, chronic or delirium superimposed on dementia.

ALL WARD POPULATIONS				
Age group	Patients	Restraint	% of patients restrained	Mean period of restraint (days)
< 65	100	1	1	8
65-75	49	3	6.1	13
75-85	78	11	14.1	20.8
> 85	29	9	31	13

The period of restraint ranged between one and 104 days and the mean period was 17.6 days, median, 4.5, mode, 4. In general restraints had been in place for the length of admission.

## Modes of restraint

Bedrails were the most frequently used mode (22, 62%) followed by chemical restraint (6, 17%) and restraint vests (3, 9%). Of the restrained patients, (6, 25%) had multiple restraints in place.

The chemical restraints were in all cases prescribed in doses vastly above the recommended dose (British National Formulary 2001). For example, in one case a male patient was prescribed 45 milligrams of haloperidol per day to prevent him attempting to rise from the chair. One female patient was restrained using midazolam to curb her agitated behaviours. However, the numbers are not significant to identify a trend in types of chemical restraint.

## Staffing levels and restraint use

The staffing levels at the time of observation were recorded to show, in retrospect, if poor staffing directly corresponded to high restraint use. Table 2 shows the relationship between the percentage of restrained patients aged over 65 years by ward and nurse-to-patient ratios.

The nurse-to-patient ratios varied from three to five patients per nurse and appeared to be unrelated to the percentage of patients restrained. It was apparent that when there was a high proportion of patients over 65 years on the ward, restraint use was high. The wards with the lowest and highest proportion of patients over 65 years were associated with the lowest and highest restraint rates respectively. The rate of restraint was highest when >80% of patients were aged over 65 years, even when the nurse-to-patient ratio was nearer to 4:1 than 5:1. Ward one had no patients aged over 65 years and no restrained patients.

Table 2: Staffing levels, proportion of elderly patients and restraint use

Ward number	% of patients restrained	N : P ratio*	% patients >65
1	0	1 : 4.6	43
2	3	1 : 4.9	40
3	3	1 : 4.3	54
4	3	1 : 3.2	55
5	4	1 : 4.5	52
6	8	1 : 5	66
7	11	1 : 4.6	86
8	18	1 : 4.8	66
9	25	1 : 4.1	88

\* Nurse to patient ratio

## Origin of restrained patients

The majority of restrained patients came from home (17, 67%), the smallest group from a nursing home (3, 12.5%) and the remainder from hostels. Of the 24 patients who were restrained, 16 were medical (67%) and eight were surgical patients (33%). The rate of restraint was not significantly different between males (46%) and females (54%).

## Reason for restraint

The most frequent reason nursing staff gave for using restraint was to prevent falls among patients, with little insight into their lack of mobility (59%). The second most common explanation was to control agitation (21%), next were, to prevent wandering (7%) and, to prevent injury to staff or others (7%). Therapy disruption was given as a reason for restraint in 4% of cases, and in 2% of cases the nurse could not identify why the restraint was in place. In the case of patients who wandered, nurses often said they would be happy to remove restraints if they could offer a safe environment. Eighty-five percent of the nurses questioned during the data collection did not consider bedrails to be a restraint. In five cases of restraint by bedrails (32%) the nurses said they could be removed without any increased danger to the patient. Some bedrail use was not considered 'restraint' by the researcher because it did not satisfy the study definition.

## Limitations

Before discussing the results of the study, the limitations should be highlighted. It is possible, as in all point prevalence studies, that the restraint use captured in the study was atypical. Data were collected in February (Australian summer) and it is possible that mid-winter restraint rates would differ. The results should be understood as indicators of restraint rates, which can be considered along with previous and future restraint prevalence studies.

## DISCUSSION

The definitions proposed here were adequate for the project and because it was conducted in a clinical setting are also appropriate for clinical nursing. As emphasised in the literature review this definition helped clarify those practices that are of concern by separating them from similar practices which do not pose ethical, legal and profession issues for nursing.

Inappropriate definition of restraint by nurses has led to the use of bed rails as a benign intervention. Bedrails and chemical restraint were the most prevalent restraints. Bedrails have been associated with a number of cases of death by strangulation (Parker and Miles 1997; Miles and Parker 1998). Chemical restraints have been associated with hastening the decline of patients with dementia, contributing paradoxical confusion and toxic confusional states (Shamoian 1988; Patrick 1986; Gerdner and Buckwalter 1994; Cohen-Mansfield 1989).

The prevalence of restraint in the study seems high in the light of research presented in the introduction on its poor efficacy and the harm it has been associated with. The results reported here reaffirm the existing limited available figures on restraint use. The number of patients was small in the >85 year age group but the prevalence of 33% restraint indicates a disquieting figure. Further research should be conducted in this age group, who could be seen as the most vulnerable group to the damaging effects of restraint.

The current research shows that the primary reason for using a restraint was to improve patient safety. The nurses described an unsuitable environment, for example, wandering patients on wards with easy access to stairs, roads and car parks. It is important for hospital administrators to address these environmental problems and ease some of the pressure of adapting nursing techniques to unsuitable environments.

Importantly, restraints are often used for prolonged periods of time, in one case 104 days (17.6 days mean). This indicates that restraints are not a crisis intervention, they are an accepted mode of care, a disconcerting result which indicates they are not being used in accordance with the legal remedy 'necessity'.

The results correspond with previous studies that found increasing age and decreased cognitive ability to be the strongest predictors of restraint use.

The current research did not find higher staffing levels predictive of lower restraint use.

## RECOMMENDATIONS

Based on the findings of this research the following recommendations for research and practice are offered:

- 1) A universal definition of inappropriate restraint should be promoted and adopted for nursing research practice and education.
- 2) Hospital environments should be adapted to promote safety for the large numbers of older people at risk of restraint.
- 3) Hospitals should monitor their restraint use in order to examine whether change in practice is taking place.
- 4) Research into alternative modes of care should continue.

## CONCLUSION

This study identified a working definition of restraint. The patterns of inappropriate restraint use within the study hospital were described. The rates of inappropriate restraint use are high and should be a cause for concern. Increasing staffing levels may not be effective in reducing restraint but environmental adaptation would seem to be important. Inappropriate restraint use should be addressed and while studies have shown it can be complex to eliminate (Lamb et al 1999; Gilbert and Counsell 1999; Chalifour 1997), institutions should show a decreasing trend in the use of inappropriate restraint. Recommendations have been suggested as to what research is necessary to reduce and monitor restraint use.

## REFERENCES

- Anon. 1999. Patient restraints. Improper use of bed rails preventing restraint deaths: JCAHO recommendations. *Kansas Nurse*, 74(6):8-9.
- Bradley, L., Siddique, C.M. and Dufton, B. 1995. Reducing the use of physical restraints in long term care facilities. *Journal of Gerontological Nursing*, 21(9):21-34.
- British National Formulary. 2001. *British National Formulary*. 42. September edition. London: British Medical Association.
- Bryant, H. and Fernald, L. 1997. Nursing knowledge and the use of restraint alternatives: Acute and chronic care. *Geriatric Nursing*, 18(2):57-60.
- Castle, N. 2000. Deficiency citations for restraint use in nursing homes. *The Journals of Gerontology*, 55B(1):S33.
- Chalifour, R. 1997. Implementing a non-restraint environment. *Canadian Nurse*, June:47-8.
- Cohen-Mansfield, J. and Billig, N. 1989. Agitation in the elderly. *Geriatric Psychiatry*, 19:101-13.
- Dunbar, J.M., Newfeld, R.R., Libow, L.S., Cohen, C.E. and Foley, W.J. 1997. Taking charge. *Journal of Nursing Administration*, 27(3):42-8.
- Ewart, S. 1997. The use of restraints in Saskatchewan long term care facilities. *Concern*, 26(4):27-29.

- Gaebler, S. 1993. Predicting which patient will fall again... and again. *Journal of Advanced Nursing*. 18:1895-1902.
- Gaebler, S. 1994. Just who do we restrain? *Australian Nursing Journal*. 2(1):39-41.
- Gardner, L.A. and Buckwalter, K.C. 1994. A nursing challenge: Assessment and management of agitation in Alzheimer's patients. *Journal of Gerontological Nursing*. 20(4):11-20.
- Gilbert, M. and Counsell, C. 1999. Planned change to implement a restraint reduction program. *Journal of Nursing Care Quality*. 13(5):57-64.
- Kasper, C.E., Maxwell, L.E and White, T.P. 1996. Alterations in skeletal muscle related to short term impaired mobility. *Research in Nursing and Health*. 19:133-42.
- Kow, J.V. and Hogan, D.B. 2000. Use of physical and chemical restraints in medical teaching units. *Canadian Medical Association Journal*. 162(3):339-40.
- Lamb, K.V. 1999. Knowing what nurses and physicians understand and believe about restraint use is your guide to reduction. Help the health care team release its hold on restraint. *Nursing Management*. December:19-23.
- Lambert, V. 1992. Patient restraints: Improving safety, reducing use. *Food and Drug Administration consumer*. 26(8):9-12.
- Levine, G., Marchello, V. and Totolos, E. 1995. Progress toward a restraint free environment in a large academic nursing facility. *Journal of the American Geriatrics Society*. 43(8):941-981.
- Lofgren, R., Granieri, R. and Myllenbeck, S. 1989. Mechanical restraints on the medical wards: Are protective devices safe? *American Journal of Public Health*. 79(6):735-8.
- Macpherson, D., Granieri, R., Myllenbeck, S. and Sprafka, J. 1990. Deciding to restrain medical patients. *Journal of the American Geriatrics Society*. 38(5):516-20.
- Maruschock, R.G., Lamb, K.V., Hollanger-Smith, L. and Walton, J. 1996. Evaluation of a hospital staff's knowledge regarding the use of physical restraint. *Journal of Nursing Staff Development*. 12(3):144-8.
- Matthiesen, V. 1996. Hospital nurses' views about physical restraint use with older patients. *Journal of Gerontological Nursing*. 22(6):8-16.
- Miles, S. 1996. A case of death by physical restraint: New lessons from a photograph. *Journal of the American Geriatrics Society*. 44:291-2.
- Miles, S. and Parker, K. 1998. Deaths caused by bed rails. *Journal of the American Geriatrics Society*. 46(6):794.
- Molasitotis, A. 1995. Use of physical restraints: Consequences. *British Journal of Nursing*. 4(3):31-9.
- Morrison, A. 1997. Incorrect restraint use: Deadly protection. *Nursing* 97. June:32.
- Morse, J. and McHutchion, E. 1991. Releasing restraints: Providing safe care for the elderly. *Research in nursing and health*. 14:187-196.
- Moss, R.J. and La Puma, J. 1991. The ethics of mechanical restraint. *The Hastings Center report*. 21(1):22-6.
- Parker, K. and Miles, S.H. 1997. Deaths caused by bed rails. *Journal of the American Geriatrics Society*. 45:798-802.
- Paterson, B., Leadbetter, D. and McCormish, A. 1998. Restraint and sudden death from asphyxia. *Nursing Times*. 94(44):62-4.
- Patrick, M. 1986. Daily living with cognitive deficits and behavioural problems. In *Nursing Management for the Elderly*. Carnevali, D.L. and Partick, M. (eds) Lippincott. Philadelphia: 270-86.
- Powell, C., Mitchell-Pedersen, L., Fingerote, E. and Edmund, L. 1989. Freedom from restraint: Consequences of reducing physical restraints in the management of the elderly. *Canadian Medical Association Journal*. 141(6):561-4.
- Reith, K. and Bennett, C. 1998. Restraint free care. *Nursing Management*. 29(5):36-40.
- Shamoian, C.A. 1988. Somatic therapies in geriatric psychiatry. In *Essentials of Geriatric Psychiatry*. Lazarus L.W. (ed) Springer. New York: 173-88.
- Strumpf, N., Patterson-Robinson, J., Stockman-Wagner, J. and Evons, L. 1998. *Restraint-free care: Individualised approaches for frail elders*. Springer Series on Geriatric Nursing, Mathy, D. and Mezey, R. (eds) New York. Springer Publishing Company, Inc: 151.
- Sullivan-Marx, E.M. Strumpf, N.E., Evans, L.K., Baumgarten, M. and Maslin, G. 1999. Initiation of physical restraint in nursing home residents following restraint reduction. *Research in Nursing and Health*. 22:369-79.
- The American Food and Drug Administration. 1992. Annual Report. *Journal of the American Medical Association*. 11(267).
- Whitehead, C., Finucane, P., Henschke, P., Nicklason, F. and Nair, B. 1997. Use of patient restraints in four Australian teaching hospitals. *Journal of Quality in Clinical Practice*. 17(3):131-6.