



Best Practice

Evidence Based Practice Information Sheets for Health Professionals

Physical Restraint - Part 1: Use in Acute and Residential Care Facilities

Introduction

The physical restraint of people during admission to acute and residential care facilities has been a common practice for many years. There is a growing concern regarding the use of these devices during health care delivery and for this reason The Joanna Briggs Institute conducted a systematic review to summarise current best evidence on this topic¹. Due to the broad scope of this review, the findings have been summarised in two *Best Practice* Information Sheets also available electronically at

www.joannabriggs.edu.au

Part 1: Physical Restraint

The first *Best Practice* Information Sheet addresses the use of physical restraint, the impact of being restrained and the risk of adverse events associated with physical restraint. As part of this information sheet, recommendations arising from the review are presented.

This Information Sheet Covers the Following Concepts:

- Current Practice
- Characteristics of Restrained People
- Reasons for Restraining People
- Injury and Physical Restraint
- The Experience of Restraint
- Restraint Minimisation

Part 2: Restraint Minimisation

The second *Best Practice* Information Sheet focuses specifically on restraint minimisation. The approaches to restraint minimisation that were

Levels of Evidence

All studies were categorised according to the strength of the evidence based on the following revised classification system.²

Level I Evidence obtained from a systematic review of all relevant randomised controlled trials.

Level II Evidence obtained from at least one properly designed randomised controlled trial.

Level III.1 Evidence obtained from well designed pseudo-randomised controlled trials (alternate allocation or some other method).

Level III.2 Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies or interrupted time series with a control group.

Level III.3 Evidence obtained from comparative studies with historical control, two or more single arm studies, or interrupted time series without a parallel control group.

Level IV Evidence obtained from case series, either post-test or pre-test and post-test.

identified in the literature are summarised. Additionally, while there has been little evaluation of alternatives to physical restraint, suggestions from the literature are summarised to serve as a resource of potential approaches.

Definition of Restraint

For the purposes of this review, physical restraint was defined as:

“...any device, material or equipment attached to or near a person’s body and which cannot be controlled or easily removed by the person and which deliberately prevents or is deliberately intended to prevent a person’s free body movement to a position of choice and/or a person’s normal access to their body.”³

While medications are also deliberately used to control behaviour this review was limited to physical restraint because of the different modes of action of physical and chemical restraint.

Current Practice

This review suggests that between 3.4% and 21% (a mean of 10%) of acute care patients were subject to some form of physical restraint during their period of hospitalisation. The duration of restraint ranged from a mean of 2.7 days up to 4.5 days. In residential care, the proportion of residents who were restrained ranged from 12% to a maximum of 47% (a mean of 27%). The mean duration of restraint for residents, reported in a single study, was 86.5 days. However, the range in duration was from 1 day to 350 days (during the study’s one-year follow-up), and 32% of residents were restrained for at least 20 days each month. These findings highlight the fact that a large proportion of patients and residents were subject to physical restraint. However, the use of physical restraint was considerably greater in residential care than in the acute care setting.

The types of physical restraint devices used in acute and residential care settings were highly variable. In the

acute care setting, the three most common devices used to restrain patients were wrist, waist and chest restraints. In the residential care setting the most common devices were vest and waist restraints.

This review identified considerable variability in how physical restraint is used in both acute care and residential care settings. This variation was not only between different studies, but was also reported in single studies. There currently appears to be little agreement on how restraint should be used and no evidence of standardisation of practice.

Characteristics of Restrained People

The review also investigated which people were most likely to be subject to physical restraint. In acute care it was people admitted to hospital from residential care facilities, had a psychiatric diagnosis or cognitive impairment, were bedridden, exhibited disruptive behaviour, or were assessed as being at risk of falling. In residential care, it was frail elderly that were most

likely to be restrained, and factors such as incontinence and inability to independently perform activities of daily living increased this risk. In both settings, findings of the review suggest that the frailest people are the ones most likely to be physically restrained.

Reasons for Restraining People

Of the reasons cited by health care workers for physically restraining people, the major justification related to patient oriented reasons. These included maintaining the safety of the person, managing agitation and aggression, behaviour control, preventing the person wandering and to provide physical support. However, restraints were also used to help achieve organisation goals (such as to enable work schedules to be completed), to maintain a comfortable social environment (such as to stop residents bothering others) and to facilitate treatment (such as to prevent people tampering with medical devices or removal of dressings and catheters).

Injury and Physical Restraint

The review investigated injuries linked to physical restraint. Two types of injury were considered. The first type was direct injury caused as a result of the external pressure from the restraining device and included lacerations, bruising or strangulation. The second type was indirect injury or adverse outcomes. This indirect injury related to the enforced immobility of a person, and included increased mortality rate, development of pressure sores, falls, or failure to be discharged home.

1. Direct Injury

While there is little information related to the prevalence of restraint-related injury in the literature, a small number of case studies reported restraint-related injuries, which included:

- **Nerve Injury**

Caused by the combination of vest and wrist restraint, in patients nursed with the head of the bed elevated, where the downward pull of the wrist restraints caused the vest to ride up into the axillae, thereby putting pressure on the distal brachial plexus.

- **Ischaemic Injury**

Ischaemic contracture of the intrinsic muscles of both hands following 48 hours of restraint of both hands against the pelvis with a leather belt.

- **Asphyxiation**

A number of papers were identified that linked the use of restraint devices to asphyxiation. In these papers the person became entangled in the device, or was found hanging from the device, typically while attempting to climb from a bed or chair.

- **Sudden Death**

Two reports describe sudden death following a prolonged period of agitation and struggling against the restraints.

- **Death**

Investigations of the death records, such as those of the coroner's office or government and local health department records demonstrated that a number deaths have occurred as a result of physical restraint devices. However, these records provide little information about how often they occur.

2. Indirect Injury

A number of indirect injuries have also been linked to the use of physical restraint devices. However, it is more difficult to demonstrate the link between restraint devices and these types of injuries, so caution is urged in interpreting this information.

Studies suggest that restrained hospital patients were more likely to fall, have an increased length of stay in hospital, acquire a nosocomial infection, die while in hospital, and were less likely to survive and be discharged home, than patients who were not restrained. The use of restraints with nursing home residents has been associated with a number of adverse outcomes, such as a decline in social behaviour, cognition and mobility, and an increase in disorientation, development of pressure sores and bladder or bowel incontinence.

While restraints were used to prevent falls, restrained residents were at equal or greater risk of falling than unrestrained residents. Serious falls-related injury was also more common in restrained residents. For residents who were continuously restrained there was a greater risk of injury than for those residents who were subject to intermittent restraint. Finally, it appears the discontinuation of restraint reduces the risk of falls-related injury.

While many suggestions on how to reduce the risk of injury were identified in the literature, the most common themes were:

- follow manufacturers recommendations
- staff orientation and in-service education on the correct use of restraint devices, and on their dangers
- avoid isolating the restrained person
- minimise the use of restraints

The Experience of Restraint

The aim of this section of the review was to assist in the understanding of what it may be like to be physically restrained or have a relative restrained.

The Experience of Being Restrained

Most statements identified in the literature clearly highlighted the negative impact of physical restraint. These experiences were summarised in two themes; restriction and discomfort.

Restriction related to a loss of freedom and control over what was happening during hospitalisation, and to a restriction on the ability to move. One person described being restrained as,

"I'm in a jail, stuck"

Many likened their plight to that of animals, such as,

"Like a caged bird..."

"...harnessed up like a mule"

The restriction to movement was summed up by one patient who said,

"...I couldn't even bring my hands together"

Discomfort related to both the decision that they were to be restrained and to the physical discomfort caused by the enforced immobility. In terms of the discomfort with the decision to use restraints, one person said,

"That's for crazy people, I was never like that"

Physical discomfort related to the pain caused by the restraining device and not being able to do things such as go to the toilet.

The Experience of Having a Relative Restrained

Similarly, most experiences described by relatives were negative, and were summarised under the two themes; anger and discomfort. People were angry at having a relative restrained and this anger was reflected in statements such as,

"...made me mad"

"I take that thing off and throw it in the draw"

One person stated that,

"She didn't do anything and she's tied up"

Some relatives were also angry at the way in which restraints were applied.

"...they just walked in, put on the restraint and never said a word"

Some statements highlighted the discomfort at having a relative physically restrained. For some the discomfort related to guilt at seeing their relative restrained, for example one relative said,

"I cried, then felt guilty"

Others viewed physical restraint as a degrading intervention, for example,

"I would rather die than be like that"

However, for others seeing their partner restrained was a point when they realised that there was little hope they would recover. For example,

"Seeing the restraint makes it so real to me. It is so real, that we can never do the things we planned"

Suggestions for Practice

For many issues related to the use of physical restraint, existing evidence is limited. Despite this a number of suggestions have been made based on the findings of studies and investigations.

To minimise the risk of injury

- Ensure the correct application of the restraint device according to the manufacturers' recommendations
- Maintain appropriate observation during the period that a person is restrained
- Provide staff orientation and in-service education on the correct use of physical restraint devices

In regard to the physical restraint minimisation

- Acute and residential care organisations should utilise a program of activities that supports a reduction in the use of physical restraint devices (discussed in detail in Part 2)
- Acute and residential care organisations should identify devices, interventions and activities that reduce the need for physical restraint (discussed in detail in Part 2)
- Acute and residential care organisations should develop alternative management strategies for those populations in which physical restraint is commonly employed. These populations will include the person who: is cognitively impaired, is at risk of falling, wanders, tampers with medical devices, is agitated or violent or has impaired mobility (discussed in detail in Part 2)

Restraint Minimisation

This component of the review sought to determine the optimal approach to restraint minimisation. As part of this, the characteristics of restraint minimisation programs and alternatives to physical restraint were also investigated (both these issues are addressed in detail in the second *Best Practice Information Sheet on Restraint Minimisation*).

There is a growing discussion in the professional literature on restraint-free care, which differs from restraint minimisation in that restraint devices are not used for any reason and are usually not kept by the health care facility. While there are some examples of restraint-free care from residential care, there is scant information from the acute care setting. As a result of this, the term 'restraint minimisation' has been used in this information sheet, not to offer support for the use of physical restraint devices, but rather to enable the evidence to be summarised in a logical and coherent manner.

While there is scant research evaluating restraint minimisation in the acute care setting, a large number of papers report the findings from the residential care setting. In residential care, the findings of a randomised controlled trial demonstrated that physical restraint can be safely reduced. In this study, a restraint education program supported by clinical consultation by a specialist gerontology nurse reduced restraint use by 56% with no increase in falls or injuries. These findings have been supported by a large number of other studies.

The most common approach to restraint minimisation has been through the use of a program of multiple activities. The major component of these programs has been education. Education highlights the risks associated with the use of physical restraint and provides information on how these risks can be reduced. Alternatives to physical restraint remain the most poorly evaluated area of this topic.



Recommendations for Practice

In regard to the use of physical restraint devices, based on the findings of a single RCT

- Restraint education with clinical consultation or restraint education alone can safely reduce the use of physical restraint in the residential care setting. (Level II)

Other recommendations are proposed based on the findings of a number of different types of studies (Level III and IV)

To minimise variability that exists in clinical practice

- It is recommended that organisations and health care providers adopt a standardised approach to the use of physical restraint devices.

To minimise the risk of injury

- Physical restraint should only be used as a last resort, and only when the potential benefits are greater than the potential harm.
- If physical restraint must be used, then it is recommended that only the minimal level of restraint that ensures the safety of the person, or that facilitates treatment, be employed.
- Once initiated, the need for physical restraint should be reviewed regularly.

References

1. Evans D, et al., 2002, Physical Restraint in Acute and Residential Care, A Systematic Review No. 22 The Joanna Briggs Institute, Adelaide, South Australia.
2. NHMRC, 1999, A guide to the development, implementation and evaluation of clinical practice guidelines, Canberra, NHMRC.
3. Retsas AP. Survey findings describing the use of physical restraints in nursing homes in Victoria, Australia. *International Journal of Nursing Studies* 1998;35(3):184-91.

- The Joanna Briggs Institute
Margaret Graham Building,
Royal Adelaide Hospital, North Terrace,
South Australia, 5000
<http://www.joannabriggs.edu.au>
ph: (+61 8) 8303 4880 fax: (+61 8) 8303 4881
- Published by Blackwell Publishing Asia

The series *Best Practice* is disseminated collaboratively by:



"The procedures described in *Best Practice* must only be used by people who have appropriate expertise in the field to which the procedure relates. The applicability of any information must be established before relying on it. While care has been taken to ensure that this edition of *Best Practice* summarises available research and expert consensus, any loss, damage, cost, expense or liability suffered or incurred as a result of reliance on these procedures (whether arising in contract, negligence or otherwise) is, to the extent permitted by law, excluded".

This sheet should be cited as:

JB I, 2002 Physical Restraint - Pt 1: Use in Acute and Residential Care Facilities, *Best Practice* Vol 6 Iss 3, Blackwell Publishing Asia, Australia.

Acknowledgments

This information sheet was developed by Dr David Evans, Ms Jackie Wood and Ms Leonnie Lambert under the guidance of a panel of experts. It has been subject to peer review by experts nominated by The Joanna Briggs Institute collaborating centres throughout Australia, New Zealand and Hong Kong.

The Joanna Briggs Institute would like to acknowledge and thank the review panel members:

- Professor Michael Clinton
- Professor Rhonda Nay
- Professor Leon Flicker
- Professor Andrew Retsas
- Ms Sue Koch