Systematic Review

Attitudes of nurses towards the use of physical restraints in geriatric care: A systematic review of qualitative and quantitative studies

Möhler Ralph\textsuperscript{a,*}, Meyer Gabriele\textsuperscript{a,b}

\textsuperscript{a} School of Nursing Science, Faculty of Health, Witten/Herdecke University, Witten, Germany
\textsuperscript{b} Institute of Health and Nursing Science, Martin-Luther-University Halle-Wittenberg, Halle/Saale, Germany

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\section*{A B S T R A C T}

\textbf{Objectives:} To examine nurses’ attitudes towards the use of physical restraints in geriatric care.

\textbf{Design:} Systematic review and synthesis of qualitative and quantitative studies.

\textbf{Data sources:} The following databases were searched: Medline, CINAHL, EMBASE, Psycinfo, PsychInfo, Social SciSearch, SciSearch, Forum Qualitative Social Research (1/1990 to 8/2013). We performed backward and forward citation tracking to all of the included studies.

\textbf{Review methods:} We included in the present review all qualitative and quantitative studies in English and German that investigated nurses’ attitudes towards the use of physical restraints in geriatric care. Two independent reviewers selected the studies for inclusion and assessed the study quality. We performed a thematic synthesis for the qualitative studies and a content analysis of the questionnaires’ items as well as a narrative synthesis for the quantitative surveys.

\textbf{Results:} We included 31 publications in the review: 20 quantitative surveys, 10 qualitative and 1 mixed–method study. In the qualitative studies, nurses’ attitudes towards the use of physical restraints in geriatric care were predominately characterised by negative feelings towards the use of restraints; however, the nurses also described a perceived need for using restraints in clinical practice. This discrepancy led to moral conflicts, and nurses described several strategies for coping with these conflicts when restraints were used. When nurses were in doubt regarding the use of restraints, they decided predominantly in favour of using restraints. The results of the quantitative surveys were inconsistent regarding nurses’ feelings towards the use of restraints in geriatric care. Prevention of falls was identified as a primary reason for using restraints. However, the items of the questionnaires focussed primarily on the reasons for the use of restraints rather than on the attitudes of nurses.

\textbf{Conclusions:} Despite the lack of evidence regarding the benefits of restraints and the evidence on the adverse effects, nurses often decided in favour of using restraints when in doubt and they used strategies to cope with negative feelings when they used restraints. A clear policy change in geriatric care institutions towards restraint-free care seems to be warranted to change clinical practice. The results of this review should also be considered in the development of interventions aimed at reducing the use of restraints.

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* Corresponding author. Tel.: +49 2302 926 362.
E-mail address: Ralph.Moehler@uni-wh.de (R. Möhler).
What is already known about the topic?

- Physical restraints are commonly used by nurses in acute and long-term care in many countries.
- The use of physical restraints has not proved to be beneficial; indeed, it is well known to be associated with many direct and indirect negative effects.
- The majority of educational interventions aiming to reduce the use of physical restraints focus on changing nurses’ attitudes.
- Although several studies have investigated nurses’ attitudes towards physical restraint, a systematic review collecting, describing and synthesising the evidence is lacking so far.

What this paper adds

- Despite the negative feelings towards the use of physical restraints in geriatric care, nurses perceived the need for using them in clinical practice and employed strategies to cope with their negative feelings.
- When in doubt, nurses often decide in favour of restraints. To effectively change clinical practice, a strong focus towards alternatives to physical restraints is needed as well as a strong policy defining physical restraints as the last resort.

1. Introduction

Physical restraints are commonly used in geriatric care in many countries (De Vries et al., 2004; Feng et al., 2009; Meyer et al., 2009). Studies have revealed pronounced centre variation in the prevalence of physical restraints use, which could not be explained by the case-mix or organisational characteristics, e.g., staffing levels (Feng et al., 2009; Minnick et al., 2007; Meyer et al., 2009). Other factors, such as the “philosophy of care” in the facilities or the nurses’ attitudes and beliefs towards the use of physical restraints, are likely to be powerful determinants of physical restraints use in geriatric care (Hamers and Huizing, 2005; Meyer et al., 2009). A change in the “philosophy of care” was called for to improve nursing practice and to reduce the use of physical restraints (Flaherty, 2004).

Several educational interventions have been evaluated in different countries, which aimed to reduce the use of physical restraints in geriatric long-term care (Gulpers et al., 2011; Köpke et al., 2012; Möhler et al., 2012). These interventions were designed to change nursing practice and reduce the use of physical restraints by addressing nurses’ knowledge and attitudes towards physical restraints use. The results of these trials were inconsistent; several small trials showed a reduction of physical restraints use, whereas others with a lower risk of bias showed little or no effect (Möhler et al., 2012). Our recently published study, which investigated a guideline-based intervention programme, found that the intervention reduced the use of physical restraints effectively and safely in nursing homes (Köpke et al., 2012). In the majority of the studies, a clear description of nurses’ attitudes was missing, although a change of clinical practice was intended by explicitly addressing nurses’ attitudes. Therefore, a systematic description of nurses’ attitudes and of the link between nurses’ attitudes and their practical use of physical restraints is a necessary basis to develop theoretically well-grounded interventions aimed at reducing the use of physical restraints.

Studies that explore attitudes towards physical restraints use in geriatric care settings have been conducted in many countries, using either qualitative or quantitative study designs. The qualitative studies aimed at describing the attitudes from the nurses’ perspective. In these studies, nurses’ attitudes towards physical restraints were described as ambivalent, characterised by respect for a person’s dignity and by anxiety and the responsibility for the resident’s safety (Hantikainen and Käppeli, 2000). Nurses described feelings of frustration and guilt when they used physical restraints against the will of a resident (Hennessy et al., 1997; Karlsson, 2000; Michello et al., 1993). The quantitative surveys aimed at describing nurses’ attitudes by using different questionnaires and by investigating the associations between nurses’ attitudes and other factors, e.g., use of physical restraints, the educational level of nurses, and characteristics of facilities or countries (Karlsson et al., 2001; Matthiesen et al., 1996; Myers et al., 2001). The results of these studies were inconsistent; no clear associations have been identified. A comparative survey in three countries suggested that nurses’ attitudes differed depending on the nurses’ definition of physical restraints and their national and cultural affiliations (Hamers et al., 2009).

To gain a deeper understanding of the themes and emotions that characterise nurses’ attitudes towards the use of physical restraints in geriatric care and to explore the connection between their attitudes and nursing practice, a systematic analysis of qualitative and quantitative studies investigating nurses’ attitudes is required.

2. Aim of the review

The objective of this systematic review was to examine the attitudes of nurses in geriatric care settings towards the use of physical restraints. Specifically, the description of characteristics of nurses’ attitudes in qualitative studies and quantitative surveys was intended. Additionally, the review was aimed at exploring differences and similarities of nurses’ attitudes in acute and long-term geriatric care settings, in different countries, and at different time periods.

3. Methods

A systematic approach following the established standards for systematic reviews was used (Higgins and Green, 2011) and adapted to the study designs included in the present review.

3.1. Inclusion and exclusion criteria

3.1.1. Types of studies

All of the studies that investigated nurses’ attitudes towards physical restraints use in geriatric care, published after 1990 in German or English, were included, i.e., qualitative studies and quantitative surveys.
3.1.2. Types of participants
All of the nursing staff who cared for older people in acute or long-term care settings. Psychiatric settings were excluded because their populations differ in their underlying diseases and physical restraints indications from the geriatric care populations.

3.1.3. Types of outcomes
All of the information on nurses’ attitudes towards the use of physical restraints, i.e., qualitative data on nurses’ views or experiences or quantitative data from questionnaires.

3.2. Literature search and study selection
The following databases were searched (June 2011): Medline (via PubMed), CINAHL, EMBASE, PsycINFO, Social SciSearch, SciSearch and FQS (Forum Qualitative Social Research). Three groups of search terms (text words and MeSH terms if available) were combined: (1) physical restraints, bedrail, side rail, belt, containment measure, cot side; (2) attitude, perception, experience, perspective, feelings, thoughts, opinions, beliefs, view; and (3) caregiver, nurse, nursing. The search was limited to papers published after 1990 (until the date of the search) in German and English. The complete search strategy for PubMed is displayed in additional file 1. The search was updated in August 2013. The titles and the abstracts of citations obtained by the database search were screened independently by two reviewers and checked for inclusion. For included studies, backward citations (reference lists) and forward citations (via Scopus and Google Scholar) were checked for additional relevant publications.

3.3. Quality appraisal and data extraction
The study quality was assessed by design-specific instruments. For qualitative studies, the criteria by Walsh and Downe (2006) were used, including the following domains: scope and purpose, design, sampling strategy, analysis, interpretation, reflexivity, ethical dimensions, and relevance and transferability (for a list of the individual items, see Table 2). For the quantitative surveys, a criteria catalogue was developed, which was based on the recommendations by Kelley et al. (2003) and Draugalis et al. (2008), and covered the following domains: scope and purpose, research methods, ethics, design of the research tools, sample and sampling, data collection, and data analysis (for a complete list of the items, see Table 4). The data were extracted by two reviewers independently and checked for accuracy by use of a self-developed data extraction sheet for the surveys and the qualitative studies. The forms comprised the quality appraisal items and items that addressed the following information: aim/purpose of the study, definition of physical restraints, study methodology, instruments used (for surveys: information on the development of the questionnaire, validity, reliability, pilot test), methods of sampling (setting, recruitment strategy; for surveys: information on sample size calculation, response rate, information on non-responders), methods of data collection (for surveys: method of delivering the questionnaires, information on reminders), methods of data analysis, characteristics of participants, and results.

3.4. Data synthesis
Data synthesis was performed in a stepwise approach. First, the included studies were analysed separately according to their study design. Because the mixed-methods study used predominately qualitative methods for data collection and analysis, it was allocated to the pool of qualitative studies. The qualitative and mixed-methods studies were analysed and synthesised using the three-stage thematic synthesis approach described by Thomas and Harden (2008). In the first stage, the results of the included studies were coded line-by-line to identify ‘free codes’. The sources of information were primarily the results section of the publications. The themes and concepts identified in the primary studies were not necessarily adopted. In the second stage, free codes were organised in descriptive themes. In the third stage, the descriptive themes were compared between studies, focussing on similarities and differences. In this iterative process, analytical themes were developed. The second and the third stages were not strictly separated. All three stages of the synthesis were undertaken by the first author. The results of the second and third stages of the synthesis, i.e., the descriptive and analytic themes, were discussed several times with a group of researchers who were experienced with synthesising qualitative studies.

For the quantitative studies, a numeric comparison of the results was not feasible because the number of studies using the same questionnaire was too small and the underlying concepts of attitudes represented in the different questionnaires were heterogeneous. Therefore, a qualitative content analysis (Mayring, 2008) was conducted to describe the concepts of attitudes represented in the different questionnaires. The qualitative content analysis by Mayring (2008) is an inductive development of categories. In the first step, the content of the individual items was extracted and reworded in more general terms. The general terms were re-analysed to develop the topics. These topics were developed as closely as possible to the original material. The qualitative content analysis was performed by the first author. In the process of developing the topics, several presentations of the general terms and the potential categories were conducted by two researchers who had experience with qualitative content analysis. For all of the identified topics, the data of the corresponding items were analysed to identify similarities or differences across questionnaires.

In the second step, the results of the qualitative and quantitative synthesis were re-analysed to identify and describe the central themes or concepts of nurses’ attitudes beyond the different study designs.

4. Results
After the removal of duplicates, the database search revealed 907 citations, which were screened for relevance. First, 845 citations were excluded based on title and
abstract because they did not meet the inclusion criteria. The remaining 62 publications, which were eligible for inclusion in the review, were assessed in full text, and 30 met the inclusion criteria. The primary reasons for exclusion were that the studies did not meet the inclusion criteria for the research question or the care setting. One additional publication was identified via forward citation tracking. The search update revealed 145 publications, but no relevant study was identified for inclusion.

Overall, 31 publications were included: 20 quantitative publications reporting on surveys, ten qualitative publications, and one mixed-method study, with two qualitative and two quantitative publications reporting data from the same study (Fig. 1). Additionally, five experimental studies comprising quantitative data on attitudes were identified but were not included because they did not meet our inclusion criteria. From these studies, additional questionnaires on nurses’ attitudes were identified and included in the qualitative content analysis.

4.1. Characteristics of included studies

All of the studies investigated the attitudes of nurses working with elderly residents or patients towards the use of physical restraints in acute or long-term geriatric care settings.

4.1.1. Qualitative and mixed-methods studies

Ten publications reporting on nine qualitative studies and one mixed-methods study were included (Table 1). The studies were conducted in the USA (n = 4), Hong-Kong (n = 2), Taiwan (n = 1), Sweden (n = 1), Switzerland (n = 1), and Finland (n = 1). Five studies recruited participants in geriatric acute care settings, four studies recruited participants in nursing homes, and one study recruited participants in a rehabilitation hospital.

The results of the quality assessment of included studies are presented in Table 2. All of the studies used adequate methods for assessing and analysing the data. Five studies recruited a purposive sample, two studies a convenience sample, and one study a theoretical sampling. The sampling method was unclear in two studies. In the study by Quinn (1993), the strategies of theoretical sampling were described; however, the participants were recruited from only one hospital ward. Few studies have provided information on data saturation, and only three studies have described examples of how the categories were created (Table 2).

4.1.2. Quantitative surveys

Twenty publications on 19 studies were included (Table 3). The studies were published between 1991 and 2011 and were conducted in the USA, Europe, Asia and Australia. Twelve different questionnaires or versions of questionnaires were used. The results of the quality assessment of the included studies are shown in Table 4. All of the studies included a convenience sample. The number of participants ranged from 16 to 268, and the participants were recruited from one to five facilities. Studies were conducted in acute care (n = 7), long-term care (n = 8), rehabilitation facilities (n = 1) or in both acute and long-term care settings (n = 3).

4.2. Meta-synthesis of the qualitative and mixed-methods studies

Five themes were identified which characterise nurses’ attitudes towards the use of physical restraints in geriatric care: nurses’ feelings towards the use of physical restraints, perceived need to use physical restraints in daily practice, moral conflicts when using physical restraints, strategies for coping when using physical restraints, and nurses using physical restraints as an ‘ordinary’ nursing intervention.

4.2.1. Nurses’ feelings towards the use of physical restraints

Feelings regarding the use of physical restraints in geriatric care were predominantly characterised as negative by the participants in the studies (Chuang and Huang, 2007; Hantikainen and Kappeli, 2000; Janelli et al., 1995; Lai, 2007; Quinn, 1993; Saarnio and Isola, 2010). The participants described feelings of guilt, frustration, sadness or discomfort. However, in several studies, the participants described less negative or no negative feelings or even positive feelings (“feel secure and relieved”, Chuang and

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Table 1: Characteristics of qualitative and mixed-methods studies.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Setting *</th>
<th>Aims/purpose of the study</th>
<th>Data collection and analysis</th>
<th>Sampling strategy; Sample</th>
<th>Main results/themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chuang and Huang (2007)</td>
<td>6 medical or surgical units from 3 hospitals (1 medical centre, 2 district teaching hospitals); Southern Taiwan</td>
<td>In-depth understanding of psychological issues related to nurses’ use of physical restraints on older patients</td>
<td>Semi-structured interviews; Content analysis</td>
<td>Purposive sample; n = 12 nurses</td>
<td>Feelings and thoughts about using physical restraints on older patients; Strategies for coping with these feelings</td>
</tr>
<tr>
<td>Hantikainen and Kääpeli (2000) b, Hantikainen (2001) b</td>
<td>4 long-term units of 2 NHs; German-speaking Switzerland</td>
<td>Nursing staff perceptions of physical restraints use and patient behaviours and how these perceptions govern decision-making on the use of physical restraints</td>
<td>Unstructured interviews; Phenomenological method (Colazzi)</td>
<td>Purposive sample; n = 20 nurses (n = 5 RNs, n = 6 LPNs, n = 3 trained NAs, n = 4 untrained auxiliary staff)</td>
<td>Understanding the term restraint; situations in which the decision to apply restraint is considered justified; situations in which nursing staff are uncertain about the use of physical restraints</td>
</tr>
<tr>
<td>Hennessy et al. (1997)</td>
<td>1 private non-profit NH (120 beds); USA</td>
<td>In-depth understanding of nursing staff’s attitudes and concerns about the role of physical restraints in resident care and their views about how the NH environment affects the use of physical restraints</td>
<td>Focus groups; Constant comparative (Strauss and Corbin)</td>
<td>Unclear sampling; 2 focus groups: n = 9 nurses (n = 1 RNs, n = 2 LPNs, n = 6 CNAs); 1 focus group: n = 3 (n = 2 administrators, n = 1 NH director)</td>
<td>Definitions of physical restraints; Patient characterstics and context factors and decision-making</td>
</tr>
<tr>
<td>Janelli et al. (1995)</td>
<td>Units of a tertiary hospital; USA (New York)</td>
<td>Description of the lived experience of nurses using physical restraints in a hospital setting</td>
<td>Focus groups (n = 3) Phenomenological method (Colazzi)</td>
<td>Purposive sample; n = 12 nurses (n = 5 RNs, n = 7 LPNs)</td>
<td>Patient characteristics, safety and unit traditions; Nurses’ attitudes and decision-making</td>
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<tr>
<td>Janelli and Kanski (1996)</td>
<td>Medical, surgical units, tertiary hospital; USA (New York)</td>
<td>Description of essential behaviours of patients observed by nurses when deciding to use or release physical restraints</td>
<td>Focus groups (n = 2) Phenomenological method (Colazzi)</td>
<td>Purposive sample; 2 focus groups; n = 12 nurses (n = 10 RNs, n = 2 LPNs)</td>
<td>Influence of nurses’ personal attitudes and perceptions on decision-making</td>
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<td>Lai (2007)</td>
<td>Rehabilitation setting; Hong Kong</td>
<td>Exploration of nurses’ views on the use of physical restraints and the means available to reduce physical restraints</td>
<td>Focus groups (n = 4) Phenomenological method (Colazzi)</td>
<td>Convenience sample; 2 focus groups, n = 22 RNs</td>
<td>Internal conflicts when applying physical restraints; reasons and staff-related factors for physical restraints use; communication problems among stakeholders</td>
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<tr>
<td>Lee et al. (1999)</td>
<td>1 medical, 1 geriatric unit in 2 regional hospitals; Hong Kong</td>
<td>Exploration of nurses’ perceptions of the use of physical restraints on older patients</td>
<td>Semi-structured interviews (conducted in Cantonese) Content analysis</td>
<td>Convenience sample; n = 20 RNs</td>
<td>Reasons and feelings associated with the decision for physical restraints use</td>
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<td>Quinn (1993)</td>
<td>Medical-surgical hospital wards; USA</td>
<td>Description of how nurses explain their use of physical restraints with elderly patients. To examine whether nurses perceived the physical restraints decision to be a moral problem.</td>
<td>Grounded Theory Qualitative Interviews constant comparative analysis (Glaser and Strauss)</td>
<td>Theoretical sampling; n = 20 RNs;</td>
<td>Reasons for applying physical restraints; decision-making; moral problems</td>
</tr>
<tr>
<td>Saarnio and Isola (2010)</td>
<td>Municipal or private NHs and health centre wards; Finland</td>
<td>Description of the nursing staff perceptions on the use of physical restraints in institutional care of older people in Finland</td>
<td>Qualitative Focus groups (n = 4) Inductive content analysis</td>
<td>Purposive sample 4 focus groups: nurses (n = 6), practical nurses (n = 6), institutional assistants (n = 4), care supervisors (n = 5)</td>
<td>Factors contributing to physical restraints use; Emotions related to physical restraints use; coping methods of the nurses; physical restraints use and operational culture of the work community</td>
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<td>Karlsson (2000)</td>
<td>2 NHs; Northern Sweden</td>
<td>Illumination of nurses’ reasoning with regard to the use of physical restraints in nursing practice. Investigate the relation between the attitudes of nurses and their decisions regarding physical restraints use</td>
<td>Mixed-methods Clinical vignette Qualitative interviews Content analysis (Burnard); Perception restraint use questionnaire (PRUQ)</td>
<td>Unclear; n = 30 RN (15 per facility)</td>
<td>Decision-making to use restraint; Decision not to use restraint; Conditions that would make nurses change their initial decisions (nurses reasoning)</td>
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Abbreviations: RNs: registered nurses; LPNs: licensed practical nurses; CNAs: certified nursing assistants; NAs: nursing assistants.

* Numbers and size of facilities/wards presented if available;

b Publications reporting on the same study, all publications were considered as one study.
Table 2
Methodological quality of qualitative studies.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Clear statement of, and rationale for, research question/aims/purposes</th>
<th>Study thoroughly contextualised by existing literature</th>
<th>Method/design apparent, and consistent with research intent</th>
<th>Data collection strategy apparent and appropriate</th>
<th>Sample and sampling method appropriate</th>
<th>Analytic approach appropriate</th>
<th>Involvement of more than one researcher and/or participants in analysis</th>
<th>Evidence provided that data reached saturation or discussion if it did not</th>
<th>Description/examples of how coding systems/conceptual frameworks evolved</th>
<th>Data used to support interpretation (e.g. verbatim interview quotes/field notes)</th>
<th>Researcher reflexivity demonstrated</th>
<th>Relevance and transferability evident</th>
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<tr>
<td>Chuang and Huang (2007)</td>
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* Symbols indicate: Yes; No.

Table 3
Characteristics of surveys.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Setting</th>
<th>Questionnaire; survey method</th>
<th>Sample strategy</th>
<th>Sample</th>
<th>Attitude score, mean ± SD (range)</th>
<th>Response rate</th>
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<tbody>
<tr>
<td>Ben Natan et al. (2010)</td>
<td>1 NH (572 beds, largest geriatric care institution); Israel</td>
<td>Newly developed questionnaire; distributed by the researchers</td>
<td>Convenience sample; 50% of the total staff employed</td>
<td>n = 104; 34.6% RNs (no academic degree), 32.7% RNs (Baccalaureate Degree), 32.7% PAs; female 90%, mean age 38.1 (20–59)</td>
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<td>86%</td>
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<td>Hamers et al. (2009)</td>
<td>(Psychogeriatric) NHs; The Netherlands (Maastricht, Heerlen), Germany (Bremen, Hamburg), Switzerland (Luzern)</td>
<td>Maastricht Attitude Questionnaire (MAQ); distributed by the researchers</td>
<td>Convenience sample; per site a minimum of 150 nursing staff members</td>
<td>n = 608 (n = 166 Netherlands, n = 184 Switzerland, n = 258 Germany); 7% charge nurse, 18% RNs, 29% PAs, 36% nurse aids, 10% others; female 81%</td>
<td>3.05 ±0.47, Switzerland 3.03 ±0.55</td>
<td>Unclear</td>
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<tr>
<td>Hardin et al. (1994)</td>
<td>2 urban extended care and NH Veteran Affairs facilities; USA</td>
<td>Newly developed questionnaire; distributed by the researchers</td>
<td>Convenience sample; all nurses from participating facilities</td>
<td>n = 71; n = 18 RNs, n = 7 LPNs, n = 46 NAs; female 73%</td>
<td>22.52 ±3.14 (9–31)</td>
<td>67%</td>
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<tr>
<td>Study</td>
<td>Description</td>
<td>Sample Characteristics</td>
<td>Results</td>
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<td>Helmuth (1995)</td>
<td>Describe the relationship between nurses’ attitudes towards physical restraints use and their actual use of physical restraints in an acute geriatric care setting</td>
<td>Convenience sample, n = 52; 17% LPNs, 29% diploma, 31% associate degree, 23% Bachelor of Science; female 98%; mean age 34.02 (20–59)</td>
<td>3.66 ± 0.41 (1–5) [62%](n = 4)</td>
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<td>Hill and Schirm (1996)</td>
<td>Investigate attitudes held by nursing staff in long-term care facilities towards physical restraints</td>
<td>Convenience sample, n = 140; 38.6% RNs and LPNs, 60% NAs, 1.4% unclear; female 94.3% (1.4% unclear); mean age 36.7 (17–65)</td>
<td>– [54%(n = 4)</td>
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<tr>
<td>Karlsson et al. (1998)</td>
<td>Investigate the use of physical restraints in institutional elder care and staff knowledge about attitudes towards their use</td>
<td>Convenience sample, n = 529; n = 464 nursing staff, 14.6% RNs, 64.7% LPNs, 20.7% NAs; female 97%; age median class RNs 40–49, LPNs 30–39, NAs 40–49</td>
<td>– [100%(n = 4)</td>
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<tr>
<td>Karlsson et al. (2001)</td>
<td>To investigate the contribution of environmental, organisational variations and resident and staff characteristics (e.g. attitudes) on physical restraints use</td>
<td>Convenience sample, n = 281 (60% medical units, 24% geriatric units, 16% gerontopsychiatric units); 73% RNs, 10% LPNs, 15% NAs; 2% Mental health worker; female 93.2%, mean age 41 (19–63)</td>
<td>67% RNs, 79% NAs, 82% LPNs [63%(n = 4)]</td>
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<tr>
<td>Matthesien et al. (1996)</td>
<td>Describe nurses’ knowledge, practice and attitude regarding the use of physical restraints with older patients in hospital settings; and to determine whether demographic characteristics or the hospital practice setting influence this</td>
<td>Convenience sample, n = 281 (60% medical units, 24% geriatric units, 16% gerontopsychiatric units); 73% RNs, 10% LPNs, 15% NAs; 2% Mental health worker; female 93.2%, mean age 41 (19–63)</td>
<td>67% RNs, 79% NAs, 82% LPNs [63%(n = 4)]</td>
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<tr>
<td>McCabe et al. (2011)</td>
<td>Examine perceptions of physical restraint use in older adults among RNs and NAs</td>
<td>Convenience sample, n = 94; 72% RNs, 28% NAs; female 91.5%</td>
<td>2.8 (1–5) [35%(n = 4)]</td>
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<tr>
<td>Michello et al. (1993)</td>
<td>Assessing the attitudes of NAs and LNs towards using physical restraints in a long-term care facility and exploration of the potential effects of nursing education on physical restraints use</td>
<td>Convenience sample, n = 268; 31% LNs, 69% NAs</td>
<td>– [Unclear(n = 4)]</td>
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<tr>
<td>Molassiotis and Newell (1996)</td>
<td>Exploring differences in physical restraints use and attitudes of nurses in Greece and UK</td>
<td>Convenience sample, n = 50 (n = 39 UK, n = 11 Greece); U.K. 20% charge nurses, 49% staff nurses, 31% enrolled nurses</td>
<td>– [Unclear(n = 4)]</td>
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<tr>
<td>Myers et al. (2001)</td>
<td>Explore the relationship between nurses’ use of physical restraints and their attitudes towards physical restraints use and the elderly</td>
<td>Convenience sample, n = 201; 82.5% RNs/clinical nurses; female 89.6%; mean age 37.18 (range 21–60)</td>
<td>3.34 (1–5) [29%(n = 4)]</td>
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Table 3 (Continued)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Aim</th>
<th>Setting&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Questionnaire; survey method</th>
<th>Sample strategy</th>
<th>Sample</th>
<th>Attitude score, mean ± SD (range)</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scherer et al. (1991); Janelli et al. (1992)</td>
<td>Determine the current perceptions or attitudes of nurses regarding the use of physical restraints</td>
<td>1 NH (623 beds); USA</td>
<td>Attitude towards the use of restraints, newly developed; distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 118; 14% RN, 32% LPNs, 53% NAs; female 88%; mean age 35 (range 19–59)</td>
<td>–</td>
<td>20%&lt;sup&gt;b,c&lt;/sup&gt;</td>
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<tr>
<td>Schirm et al. (1993)</td>
<td>Identify perceptions of nurses regarding physical restraints use in long-term care and determine conditions in which nursing staff might recommend physical restraints use</td>
<td>3 NHs (2 with approx. 100 beds, 1 with 222 beds); USA</td>
<td>Physical Restraints in Long-Term Care Questionnaire (PRLTC); distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 124; 25.8% LNs; 74.2% NAs; most female; mean age 36 NAs, 44 LNs</td>
<td>–</td>
<td>Unclear</td>
</tr>
<tr>
<td>Suen (1999)</td>
<td>To determine the knowledge level, attitudes and practice of nursing staff towards physical restraints use in nursing homes in Hong Kong</td>
<td>5 subsidised NHs (126 to 250 beds); Hong Kong</td>
<td>Attitude towards the use of restraints; distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 253; 8.4% RNs, 24% enrolled nurses, 67.6% personal care workers</td>
<td>29.7 ± 3.11 (12–48)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>73%</td>
</tr>
<tr>
<td>Janelli et al. (1992)</td>
<td>Examine levels of knowledge, attitudes, and staff practices regarding physical restraints use in rehabilitative settings</td>
<td>2 rehabilitation centres (312 beds); clients mainly diagnosed with stroke, chest infection, hypertension, diabetes mellitus, heart diseases and other conditions that require long-term rehabilitative care; Hong Kong</td>
<td>Attitude towards the use of restraints; distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 168; 1.2% nursing officers, 35.8% RNs, 27.9% enrolled nurses, 31% healthcare assistants, 4.1% unclear; male–female ratio 1:9</td>
<td>31.0 ± 3.41 (12–48)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>80%</td>
</tr>
<tr>
<td>Schirm et al. (1993)</td>
<td>Examine perceptions of nurses regarding physical restraints use in long-term care and determine conditions in which nursing staff might recommend physical restraints use</td>
<td>3 NHs (2 with approx. 100 beds, 1 with 222 beds); USA</td>
<td>Physical Restraints in Long-Term Care Questionnaire (PRLTC); distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 124; 25.8% LNs; 74.2% NAs; most female; mean age 36 NAs, 44 LNs</td>
<td>–</td>
<td>Unclear</td>
</tr>
<tr>
<td>Weiner and Mendelsson (2001)</td>
<td>Examine nursing staffs’ attitudes, subjective norms, moral obligations and intentions to use physical restraints by using the Theory of Reasoned Action (TRA)</td>
<td>One large elder care hospital (800 beds); Israel</td>
<td>Newly developed questionnaire; distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 200 (100 hospitals, 100 NH); Bachelor nursing 13.9% hospital, RNs 32.7% hospital, 14% NH, PAs 35.6% hospital, 25% NH, nurse aid 17.8% hospital, 61.0% NH; female hospitals 89%; NH 87%; mean age hospitals 37.8 ± 10.2, NH 43.8 ± 9.0</td>
<td>4.35 ± 1.98 (1–7)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>73%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Werner (2002)</td>
<td>Examine the ethical dilemmas of nursing staff using physical restraints for dementia patients in ‘realistic’ and ‘idealistic’ situations</td>
<td>2 psychotherapeutic units (Psychiatric hospitals) and NHs; Israel</td>
<td>Perceptions of Restraint Use Questionnaire (PRUQ, 11 items); distributed by the researchers</td>
<td>Convenience sample</td>
<td>n = 160 (32% NH, 32% RNs, 68% LPNs; female 95.2%; mean age 50.5 hospital, 44.6 NH</td>
<td>2.3 (1–5)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Unclear</td>
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</table>

Abbreviations: RNs: registered nurses; LPNs: licensed practical nurses; LNs: licensed nurses; PAs: practical nurses; CNA: certified nursing assistants; NAs: nursing assistants; NH: nursing home.

<sup>a</sup> Numbers and size of facilities/wards presented if available.

<sup>b</sup> Values rounded.

<sup>c</sup> Value calculated for this review.

<sup>d</sup> Higher scores indicate more positive/favourable attitudes towards physical restraints use.

<sup>e</sup> Lower scores indicate more positive/favourable attitudes towards physical restraints use.

<sup>f</sup> Publications reporting on the same study, all publications were considered as one study.
<table>
<thead>
<tr>
<th>Methodological quality of surveys. a</th>
<th>Table 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Nathan et al. (2010)</td>
<td>Purpose/aim clearly stated, including the research question</td>
</tr>
<tr>
<td>Hamers et al. (2009)</td>
<td>Research methods clearly stated and appropriate for question</td>
</tr>
<tr>
<td>Hardin et al. (1994)</td>
<td>Description of ethical approval</td>
</tr>
<tr>
<td>Helmuth (1995)</td>
<td>Physical restraints clearly defined</td>
</tr>
<tr>
<td>Hill and Schirm (1996)</td>
<td>Psychometric properties stated or assessed</td>
</tr>
<tr>
<td>Karlsson et al. (1998)</td>
<td>All items reported</td>
</tr>
<tr>
<td>Karlsson et al. (2001)</td>
<td>Sample size calculation reported</td>
</tr>
<tr>
<td>Matthiesen et al. (1996)</td>
<td>Characteristics of participants described</td>
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<tr>
<td>McCabe et al. (2011)</td>
<td>Information on potential non-responder bias</td>
</tr>
<tr>
<td>Michello et al. (1993)</td>
<td>Methods and tests used for data analysis described</td>
</tr>
<tr>
<td>Molassiotis and Newell (1996)</td>
<td>Results for all items reported</td>
</tr>
<tr>
<td>Myers et al. (2001)</td>
<td>Table 4 Methodological quality of surveys. a</td>
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<tr>
<td>Sack et al. (1991); Janelli et al. (1992)</td>
<td>Purpose/aim clearly stated, including the research question</td>
</tr>
<tr>
<td>Schirm et al. (1993)</td>
<td>Research methods clearly stated and appropriate for question</td>
</tr>
<tr>
<td>Hill and Karson (1990)</td>
<td>Description of ethical approval</td>
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<tr>
<td>Karson et al. (2001)</td>
<td>Physical restraints clearly defined</td>
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<tr>
<td>Mathiesen et al. (1999)</td>
<td>Psychometric properties stated or assessed</td>
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<tr>
<td>McClellan et al. (2011)</td>
<td>All items reported</td>
</tr>
<tr>
<td>Michello (1993)</td>
<td>Sample size calculation reported</td>
</tr>
<tr>
<td>Schirm et al. (2006)</td>
<td>Characteristics of participants described</td>
</tr>
<tr>
<td>Werner and Sundby (2002)</td>
<td>Information on potential non-responder bias</td>
</tr>
<tr>
<td>Werner et al. (2003)</td>
<td>Methods and tests used for data analysis described</td>
</tr>
<tr>
<td>Werner et al. (2002)</td>
<td>Results for all items reported</td>
</tr>
</tbody>
</table>

Symbols indicate: Yes = Y, No = N.
Huang, 2007; Lee et al., 1999; Quinn, 1993). In geriatric care, nurses often used physical restraints against a resident’s or patient’s will. This action often led to defensive behaviour (verbal or non-verbal) by residents or patients with physical restraints against the restricting measures, and the experience of such behaviour is one factor that led to negative feelings towards the use of restraints. In two studies, nurses described feeling pity for the resident and guilt regarding the application of physical restraints (Chuang and Huang, 2007; Saarnio and Isola, 2010). “I saw some ‘grandmas’ or ‘grandpas’ that were so amiable. When I saw them being restrained, I felt pity for them” (Chuang and Huang, 2007). In one study, the degree of negative feelings of the participants was also influenced by a conflict of values regarding the decision to use restraints (Quinn, 1993) (see ‘moral conflicts when using physical restraints’).

4.2.2. Perceived need to use physical restraints in daily practice

In daily practice, nurses are confronted with situations in which they experience the necessity for using physical restraints. This need to use physical restraints covers situations in which nurses are obliged to guarantee the residents’ or patients’ safety, fulfill other tasks, prevent themselves from being harmed or from being at risk of liability, or must adhere to prior decisions made regarding the use of physical restraints. Additionally, the lack of knowledge on the alternatives to using physical restraints increased the perceived need for using physical restraints.

4.2.2.1. Guarantee the residents’ or patients’ safety. In all of the studies, nurses stated that their primary responsibility was to guarantee the safety of the elderly persons for whom they cared. In situations in which they felt a threat to a resident’s or patient’s safety, they used physical restraints, e.g., on a person with an increased risk of falling. The nurses expected physical restraints to be able to prevent falls, fall-related or other injuries, or to safeguard medical therapy (the latter aspect was more important in acute care settings) (Hantikainen and Käppeli, 2000; Janelli et al., 1995; Janelli and Kanski, 1996; Karlsson, 2000; Lee et al., 1999; Quinn, 1993). “The nurses’ main concern when using restraint was to protect patient’s safety. This was the most important reason for restraint use by all informants. Other safety-related reasons such as ‘fear of patient falls’ and ‘prevention of accidents’ were repeatedly given” (Lee et al., 1999). Specific behaviours were mentioned as an additional potential threat for residents’ or patients’ safety. In these cases, nurses use physical restraints to control behaviours and to prevent harm, e.g., for residents or patients with wandering behaviour who leave the facility or ward unnoticed (Hantikainen, 2001; Hennessy et al., 1997; Saarnio and Isola, 2010).

4.2.2.2. Fulfil other tasks. The need for using physical restraints to control specific behaviours in situations when the nurses must perform other tasks was another reason given, e.g., caring for other people or fulfilling other obligations (Hennessy et al., 1997; Janelli et al., 1995; Janelli and Kanski, 1996; Karlsson, 2000; Lai, 2007; Quinn, 1993). In this context, insufficient staffing was described as a factor associated with the perceived need to use physical restraints (Hennessy et al., 1997; Karlsson et al., 2000; Lee et al., 1999; Lai, 2007; Saarnio and Isola, 2010). “They [the nurses] said that the low staffing level led them to apply restraints so as to reduce the number of accidents. Some suggested that there should be an extra pair of hands to reinsert feeding tubes if they were pulled out by patients” (Lai, 2007). The use of physical restraints in such situations was described primarily in acute care settings.

4.2.2.3. Risk of being harmed/risk of liability. When caring for persons with dementia, nurses described situations in which they must use physical restraints to prevent themselves from being harmed (Chuang and Huang, 2007; Hantikainen and Käppeli, 2000). The risk of liability was mentioned as another threat for the nurses themselves, e.g., after a resident’s or patient’s fall (Chuang and Huang, 2007; Hantikainen and Käppeli, 2000; Hennessy et al., 1997; Lai, 2007; Lee et al., 1999). If nurses experienced themselves at great risk of liability after such events, they perceived a stronger need for using physical restraints. This perception could lead to conflicts in daily practice. “Nursing staff were frustrated by the pressure they experienced in implementing restraint reduction policies. This sense of frustration was strong. A hospital policy with regard to fall prevention had recently been put into operation. The goal was to ask staff to reduce the fall rate by 10%, and the staff indicated that they felt pressured. The participants complained that the volume of work subsequent to a fall also added to the stress they already felt” (Lai, 2007).

Here, the reduction of falls and the reduction of physical restraints use seem to be contradictory. This conflict increased the nurses’ focus on safety issues and the perceived need for using physical restraints. “One participant mentioned that applying restraints was not an individual’s choice, but rather the overall climate of the unit had a role to play. The culture here made them worry about having a patient fall” (Lai, 2007).

4.2.2.4. Prior decisions on physical restraints use. In situations when a prior decision on physical restraints use had already been made, nurses reported that they would continue physical restraints without assessing the actual situation. In these cases, the use of physical restraints was noted to be necessary based on the prior decision of others, e.g., other nurses, physician’s order or the demand of the patient’s or resident’s family (Hantikainen and Käppeli, 2000; Janelli et al., 1995; Karlsson et al., 2000; Lai, 2007; Saarnio and Isola, 2010). “It was clearly important for nurses to feel they were accepted among colleagues. Some nurses said they could in principle carry the consequences of their decision not to use restraints, but the views of other staff made it much harder for them to take that decision” (Hantikainen and Käppeli, 2000) (see also ‘strategies for coping when using physical restraints’).

4.2.2.5. Lack of knowledge on alternatives to physical restraints. The perceived need for using physical restraints was promoted by the insufficient knowledge on alternative
caring strategies and the lack of alternatives (Chuang and Huang, 2007; Lai, 2007; Lee et al., 1999; Saarnio and Isola, 2010). “The removal of restraints leads to repeated insertion of, for example, feeding tubes, as causing greater harm to the patient than the restraint itself. They felt that they had applied restraints when there were no other options” (Lai, 2007).

4.2.3. Moral conflicts when using physical restraints

Nurses often described moral conflicts as conflicting values when they decided in favour of physical restraints use (Chuang and Huang, 2007; Hantikainen, 2001; Janelli et al., 1995; Lai, 2007; Lee et al., 1999; Quinn, 1993; Saarnio and Isola, 2010). These conflicts are based on the discrepancy between their negative feelings towards the use of physical restraints on elderly people on the one hand, and the experience of a specific clinical situation in which they perceived the need for using physical restraints on the other hand. “If you do not restrain her, you are going to worry that she is going to harm herself. On the other hand, you will also feel bad because the physical restraints confine her mobility. It is about human rights. Every time, I use the physical restraints on the older patients, I feel so torn… However, if the hospital is going to ban the use of physical restraints, it would become a disaster in the hospital. Then the nurses will be very miserable” (Chuang and Huang, 2007). In these situations, the perceived need for using physical restraints has a stronger influence on the decision of physical restraints use than the negative feelings. “As a nurse, I feel really bad, I hate to do this, this is inhumane, impolite and the restraints will frighten the elders… however, this is my responsibility and obligation to ensure their safety” (Lee et al., 1999:157). These conflicts were described in all of the studies; however, they did not lead to an alteration in the decision on physical restraints use. Nurses used strategies to cope with their moral conflicts instead (see ‘strategies for coping when using physical restraints and physical restraints as an “ordinary” nursing intervention’).

4.2.4. Strategies for coping when using physical restraints

Several strategies used by nurses to cope with their moral conflicts when using physical restraints were identified throughout the studies. The predominant strategy was to re-define the meaning of physical restraints by focussing on the expected benefit for the residents/patients or the positive intention in using physical restraints rather than the restriction or the use of physical restraints against the resident’s or patient’s will (Chuang and Huang, 2007; Hantikainen and Käppeli, 2000; Hennessy et al., 1997; Janelli et al., 1995; Quinn, 1993; Saarnio and Isola, 2010). Expected benefits were securing the resident’s or patient’s safety, e.g., preventing falls, and the use of physical restraints to support the residents or patients; e.g., physical restraints were described as “enablers, supporters or alleviators” (Hantikainen and Käppeli, 2000). Moreover, the nurses described the use of physical restraints for the residents’ or patients’ “own good” (Chuang and Huang, 2007; Hennessy et al., 1997). By re-defining the meaning of physical restraints use, the action that caused negative emotions became positive or beneficial for the resident or patient. “I am doing good things (physical restraints) for the patients, I tell myself… Actually, I don’t agree with the use of physical restraints…but… it is our job to protect patients. I have no alternative but to do it” (Chuang and Huang, 2007).

Furthermore, different measures covered by the term physical restraints were perceived differently, depending on the degree of restrictiveness. By using less restrictive devices, the meaning of the physical restraints was re-defined. “The nursing staff see some of the forms of restraint, such as the use of magnetic belts, as ‘real’ restraints, while others, such as elevated sides of the bed and geriatric chairs combined with trays are merely seen as forms of ‘everyday’ restraint” (Saarnio and Isola, 2010).

Another strategy described by nurses was sharing their feelings with colleagues to receive their affirmation. By doing so, nurses shared the responsibility for using physical restraints with their colleagues and limited their own responsibility (Chuang and Huang, 2007; Quinn, 1993).

4.2.5. Physical restraints as an ‘ordinary’ nursing intervention

In all of the qualitative studies, the use of physical restraints in general was not questioned (Chuang and Huang, 2007; Hantikainen and Käppeli, 2000; Hennessy et al., 1997; Janelli et al., 1995; Janelli and Kanski, 1996; Lai, 2007; Lee et al., 1999; Quinn, 1993; Saarnio and Isola, 2010). In situations when nurses had to decide whether to use physical restraints, their decision was usually in favour of physical restraints use, irrespective of the moral conflicts when applying physical restraints. In these situations, the nurses used different strategies for coping with their moral conflicts rather than avoiding physical restraints use or seeking alternatives to using physical restraints.

Lee et al. (1999) concluded that “although nurses in this study had mixed feelings towards restraint-use, it appears that they do not question this ‘routine’ practice…” It seems that nurses consider physical restraints to be an ordinary nursing intervention. “When they [some nurses] saw older patients being irritable, confused, or trying to remove their catheters, they would use physical restraints without hesitation. It has become an automatic response when nurses cannot control patients’ behaviour, or see them in dangerous situations.” (Chuang and Huang, 2007). The decision in favour of physical restraints use was often guided by traditions or routines (Chuang and Huang, 2007; Hantikainen and Käppeli, 2000; Lee et al., 1999; Saarnio and Isola, 2010). “Staff realized that they often continued to use sedatives and restraint automatically, without any objective assessment of the real need for restraint in the current situation” (Hantikainen and Käppeli, 2000). In one study, physical restraints was described in relation to the professional role of a nurse, implying that physical restraints is justified only by the fact that nurses use them (Quinn, 1993). In several studies, nurses described their decision in favour of physical restraints as being due to the lack of alternatives (e.g., Chuang and Huang, 2007; Lai, 2007); however, in studies where the participants described possible alternatives, they often decided in favour of physical restraints use (e.g., Hennessy et al., 1997; Saarnio and Isola, 2010). Using physical restraints seems to be an integral part of
nursing, and the decision-making is often based on routines or traditions rather than on an individual assessment of the resident or patient. The opportunity of choosing an alternative approach towards caring for elderly residents or patients is rarely used.

4.3. Synthesis of the quantitative studies

The surveys included used several questionnaires to measure nurses’ attitudes towards physical restraints use in geriatric care. After describing the content of the questionnaire items, the primary results on nurses’ attitudes towards physical restraints use as measured by the surveys will be presented.

4.3.1. Qualitative content analysis of the items of the questionnaires

Fourteen questionnaires were available for the qualitative content analysis, twelve from the surveys and two from the intervention studies that were not included in the present review. Six questionnaires were excluded from the qualitative content analysis because no items were presented in the publications. The eight questionnaires that were included comprised a total of 132 items. Nine topics were identified through qualitative content analysis (eBox 1). The two categories that describe the content of more than half of the items included assessed reasons for physical restraints use (n = 51 items) and consequences of physical restraints use (n = 22 items). Only a small number of items described aspects of nurses’ attitudes, e.g., nurses’ opinions concerning physical restraints (n = 18 items) and nurses’ feelings concerning physical restraints use (n = 10 items).

4.3.2. Results of the survey studies

A numeric comparison of the results was not feasible because of the heterogeneity of the questionnaires; therefore, the primary results of the surveys are presented in a narrative form. Table 3 shows the total mean values of the different questionnaires, if available. The mean values of the different questionnaires demonstrated slightly positive attitudes in favour of using physical restraints. However, as described by the content analysis, only a small number of items focussed on attitudes.

4.3.2.1. Nurses’ feelings towards physical restraints use. The results on nurses’ feelings when applying physical restraints are inconsistent. In the study by Karlsson et al. (1998), (58)% of the participants agreed or strongly agreed to the item “I feel bad when I have to restrain a patient”. However, in the studies by Scherer et al. (1991), Suen (1999) and Suen et al. (2006), the majority of participants (97%, 82% and 83%, respectively) disagreed or strongly disagreed with the statement “I feel guilty placing a resident in restraints”.

4.3.2.2. Reasons for physical restraints use. The prevention of falls and injuries was predominately identified to be the primary reason for using physical restraints in geriatric care (Ben Natan et al., 2010; Hardin et al., 1994; Helmuth, 1995; Hill and Schirm, 1996; Karlsson et al., 1998, 2001; McCabe et al., 2011; Michello et al., 1993; Molassiotis and Newell, 1996; Myers et al., 2001; Scherer et al., 1991; Suen, 1999; Suen et al., 2006; Werner and Mendelsson, 2001; Werner, 2002). In the studies by Suen (1999) and Suen et al. (2006), (94)% and 90% of the participants, respectively, agreed or strongly agreed to the statement “I believe that restraints lead to a reduction/increase the number of residents who fall”, and in the study by Ben Natan et al. (2010), (83)% completely or highly agreed with the statement “Physical restraining might be employed when residents are at risk of falling”.

4.3.2.3. Link between nurses’ attitudes and their use of physical restraints in clinical practice. Only two studies presented the results regarding the connection of nurses’ attitudes and their use of physical restraints. Myers et al. (2001) found that nurses’ attitudes did not predict the self-reported use of physical restraints. In the study by Karlsson et al. (1998), (29)% of the residents were restrained, although the majority of the nurses showed negative (less favourable) attitudes towards physical restraints use.

4.3.2.4. Physical restraints as an ‘ordinary’ nursing intervention. In the study by Hamers et al. (2009), the results of the ‘appropriateness’ subscale indicated that the participants assessed physical restraints use as an appropriate measure in their clinical practice (mean, 4.04 ± 0.7; maximum score, 5). In the study by Helmuth (1995), nurses described physical restraints “as an important nursing intervention for ensuring the safety of older patients”.

4.4. Synthesis of qualitative and quantitative studies

The results of qualitative and quantitative studies were difficult to compare because only a small number of items assessed aspects of nurses’ attitudes described in the qualitative studies. Regarding nurses’ feelings towards the use of physical restraints, the results of the qualitative and the quantitative studies were inconsistent; the qualitative studies described primarily negative feelings towards physical restraints use, and the quantitative surveys showed inconsistent results concerning nurses’ feelings.

A high level of agreement was demonstrated regarding the reasons for physical restraints use. In the qualitative studies, nurses described a perceived need for using physical restraints to ensure the safety of residents or patients. This perceived need for physical restraints use was confirmed by the quantitative surveys, which described safety issues, primarily preventing falls and injuries and maintaining medical treatment as the main reasons for using physical restraints.

There is also evidence in the qualitative studies as well as in some of the quantitative surveys that nurses consider physical restraints to be an ‘ordinary’ nursing intervention.
5. Discussion

The results of this systematic review showed that nurses’ attitudes were primarily characterised by negative feelings towards physical restraints use in geriatric care. However, in their clinical practice, the nurses perceived a need for using physical restraints in several situations and for various reasons and they described several strategies for coping with their moral conflicts, which derived from this discrepancy. The nurses did not question the use of physical restraints in general, and it seems that nurses considered physical restraints to be a regular nursing intervention in geriatric care.

In general, the results seem to be similar across the studies, irrespective of the country, date of conduct, study design and setting. The reasons for physical restraints use differed only slightly between long-term geriatric care and acute geriatric care settings. Nurses justify the decision for using physical restraints with elderly people primarily based on the expected benefits related to the safety of the patients or residents. These results are confirmed by a meta-synthesis on nurses’ decision-making regarding physical restraints use (Goethals et al., 2012), which has shown that safety issues rather than ethical issues or alternative measures were of more importance. Nurses expected physical restraints to be effective in preventing falls or injuries and (primarily in acute geriatric care settings) in maintaining the medical therapy. These expectations are clearly in contrast to the available evidence, which indicates that physical restraints use does not lead to a decrease in falls or fall-related injuries (Evans et al., 2003; Köpke et al., 2012; Möhler et al., 2012). Irrespective of this evidence, the myth about physical restraints as an adequate intervention to prevent falls still seems to persist (Evans and Strumpf, 1990; Hamers and Huizing, 2005; Pellfolk et al., 2012).

Most interestingly, nurses’ attitudes seem to be unchanged over time, as recent publications have reported results comparable to those that appeared in papers published 20 years ago. In a systematic review, Evans et al. (2002) identified similar reasons and justifications for using physical restraints in long-term and acute care. Although the use of physical restraints is restricted by law in many countries and although various international nursing guidelines (Köpke et al., 2012; Joanna Briggs Institute, 2002; Royal College of Nursing, 2008) and scientific publications (Flaherty, 2004; Hamers and Huizing, 2005; Gastmans and Milsen, 2006) recommend a restraint-free environment and physical restraints use only as a last resort, this was not reflected in nurses’ attitudes in studies published in the last ten years, which indicates that nurses consider physical restraints to be an ordinary nursing intervention.

Nurses used physical restraints often as a first choice without considering potential alternative measures. Several studies included in the present review described insufficient knowledge of alternatives as well as reasons for not using them in clinical practice. These aspects have been confirmed as important barriers in other studies (Kong and Evans, 2012; Nay and Koch, 2006). This aspect might partly explain the inconclusive evidence on educational interventions aimed at reducing the use of physical restraints in geriatric care. Education alone or combined with additional practice consultation seems to be ineffective with regard to changing nursing practice (Möhler et al., 2011 +2012). However, two recently published studies support the effectiveness of educational approaches (Gulpers et al., 2011; Köpke et al., 2012). Both educational interventions comprised a strict policy change towards the reduction of physical restraints. Such a policy change might have a stronger impact on the use of physical restraints in clinical practice compared to education alone. However, in the study by Lai (2007), the implementation of two partly contradictory policies (reduction of falls and physical restraints) increased the perceived need to use physical restraints. Thus, a policy change aimed at physical restraints reduction should be part of an overall strategy to ensure free and safe movement.

5.1. Methodological strength and limitations

A comprehensive search was performed to identify studies on nurses’ attitudes towards physical restraints by including several databases as well as other strategies, such as backward and forward citation tracking. Additionally, the search was not limited to specific study designs; thus, it is unlikely that relevant publications are missing in this systematic review.

Currently, there is no established methodological approach for synthesising qualitative and quantitative evidence (Dixon-Woods et al., 2005). We therefore included design-specific steps for quality appraisal and synthesis of studies with different designs to increase the credibility of the analysis.

The qualitative studies varied in research questions and methods of data collection and analysis. The included studies examined nurses’ attitudes on physical restraints use in geriatric care, and the results of the studies were predominantly consistent. By using the thematic synthesis approach (Thomas and Harden, 2008) for these studies, data were not solely compared but they were also synthesised to better understand the themes.

The included survey studies used a large number of different questionnaires or different versions of questionnaires and evaluated various aspects of attitudes. None of the included surveys offered a clear definition of attitudes, and the basis for the development of the questionnaires was often described insufficiently. The content analysis of the questionnaires’ items showed that most items referred to reasons for physical restraints use, whereas only a small number of items focussed on nurses’ feelings while using physical restraints or on any dilemma or conflicts following the use of physical restraints.

No country-related differences were derived from the analysis; however, an in-depth analysis of country-related aspects was not possible because of the small number of studies from each country that used the same study designs.

5.2. Implications for clinical practice and research

The results of the present review point to aspects that might be relevant to overcome the barriers for reducing the
use of physical restraints in clinical practice. Fall prevention seems to be the most important justification for physical restraints use, despite a clear lack of evidence for the benefit and safety. More education is needed to overcome this myth; however, education alone might not be sufficient. A clear policy towards a restraint-free care, combined with education and support for nursing staff (e.g., knowledge on and availability of alternatives), seems to be a strong facilitator for reducing the use of physical restraints.

The development of additional questionnaires should take into account the identified core aspects of nurses’ attitudes. However, it seems unlikely that additional research on nurses’ attitudes towards physical restraints use will reveal new insights on this topic. The results of this review should be incorporated into the development and careful evaluation of intervention programmes that aim to reduce the use of physical restraints.

6. Conclusion

Despite the lack of evidence regarding the benefits of physical restraints and the evidence of adverse effects, nurses’ attitudes were primarily characterised by strategies for coping with negative feelings when using physical restraints. Additionally, nurses’ attitudes were shown to be nearly unchanged over time. A strict policy change towards a restraint-free environment seems to be a promising strategy to effectively influence nursing practice. The results of this review should be incorporated in the development of interventions aimed to reduce the use of physical restraints. To better understand and evaluate the change processes initiated by such interventions, an investigation of nurses’ attitudes might explain the intervention’s fidelity.

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Conflict of interest. None declared.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.ijnurstu.2013.10.004.

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