WILEY | Hindawi

Research Article

Nursing Interventions during Seclusion and Mechanical Restraint: A Video-Observation Study in Inpatient Psychiatric Care

Jaakko Varpula [iD],[1] **Tella Lantta** [iD],[1,2] **Mari Lahti** [iD],[1,3] **Johanna Berg,**[3] **Päivi Soininen,**[4] **and Maritta Välimäki**[1,5]

[1]*University of Turku, Department of Nursing Science, Turku, Finland*
[2]*Swinburne University of Technology, Centre for Forensic Behavioural Science, Melbourne, Australia*
[3]*Turku University of Applied Sciences, Turku, Finland*
[4]*Helsinki University Hospital, Helsinki, Finland*
[5]*Xiangya School of Nursing, Central South University, Changsha, Hunan, China*

Correspondence should be addressed to Jaakko Varpula; jaheva@utu.fi

Purpose. To understand nursing practice in seclusion and mechanical restraint events in psychiatric inpatient care. *Design and Methods*. Non-participant video observation was used to collect data from seclusion and mechanical restraint events. Nursing interventions were analysed using deductive content analysis. *Findings*. Video recordings ($n = 36$) showed that nurses were present for 4.1% of the duration of seclusion and mechanical restraint events. The nursing interventions focused on meeting patients' basic needs, maintaining safety, and interaction. *Practice Implications*. Nursing must be founded on a thorough assessment of patients' physical and psychosocial needs and meeting those needs with appropriate nursing interventions.

1. Introduction

Seclusion and mechanical restraint are controversial interventions used to manage patients' aggressive behaviour in psychiatric hospitals [1]. The use of seclusion and mechanical restraint often has negative consequences such as psychological distress, traumatic experiences, and low treatment satisfaction [2]. Patients have also experienced unmet needs during seclusion and mechanical restraint [3, 4]. Despite attempts to reduce the use of seclusion and mechanical restraint, they are still used in clinical practice [2]. To improve the quality and safety of these measures, holistic care of patients is required.

Nurses are central to providing high-quality care and meeting patients' needs in healthcare settings [5]. Nursing care is founded on a holistic approach that considers patients' physical and psychological needs [6]. In

psychiatric care, nurses are required to recognise and respond to patients' needs at any given time, regardless of their ability to express them [7]. Previous studies have indicated that nursing focuses more on the psychological needs of patients and that nurses lack the skills and competence to meet patients' physical needs in psychiatric inpatient care [8]. A nursing intervention refers to any treatment provided, based on a nurse's clinical judgement and knowledge, that enhances patient outcomes [9]. In the Roper–Logan–Tierney Model of Nursing, the nurse's clinical judgement and delivery of nursing interventions are based on an assessment of the patient's needs [10]. In psychiatric inpatient care, nursing interventions have focused on improving safety by managing aggression and self-harm with surveillance, managing environmental safety, and using coercive measures. Nursing interventions in psychiatric inpatient care also involve

nurses being present and spending time with the patient, performing routine care tasks, and administrating medication [11].

Previous studies on nursing care concerning seclusion and mechanical restraint have identified unmet patient needs and experiences of negligence [3, 4, 12]. Understanding what happens during seclusion and mechanical restraint is important because during seclusion and restraint, patients are vulnerable and depend heavily on the care of nurses [4]. Yet, nurses do not always know how seclusion and restraint are used in humane and safe way [13]. Seclusion and restraint continue to be used in psychiatric inpatient care despite them being regarded as a last resort [14]. Existing studies have not fully explored what happens and what nursing interventions are provided during seclusion and mechanical restraint events in psychiatric inpatient care.

Video recordings are one way to gain a better understanding of what happens during the complex phenomenon [15] of seclusion and mechanical restraint. They can show nurses in their natural setting [16]. Routinely collected video observations can be used to identify the individual actions of nurses during clinical encounters and to capture aspects that might be missed with other data collection methods [17]. The purpose of this study was to understand nursing practice in seclusion and mechanical restraint events in psychiatric inpatient care. To understand nursing practice, we explored standard practice of nursing interventions used during seclusion and mechanical restraint events in psychiatric inpatient care using video observation. The knowledge gained can be used to understand what happens in the standard practice of seclusion and mechanical restraint in a high-income country. Reflection of these practices to existing guidelines can inform the need for improvement in seclusion and mechanical restraint practices.

2. Materials and Methods

2.1. Design. This study's exploratory qualitative observation design allowed for an exploration of the phenomenon in its natural setting without the influence of participants' experiences [18]. The Standards for Reporting Qualitative Research (SRQR) checklist was used to ensure the trustworthiness of the reporting [19].

2.2. Theoretical Framework. The Roper–Logan–Tierney Model of Nursing [10], a needs-based nursing model, was selected as a theoretical framework. The model is suitable for exploring nursing interventions using general terms in different settings [20]. It was also valuable for our purposes as it emphasises the role of nursing interventions in assisting patients in fulfilling their needs [10].

2.3. Setting. The study was conducted in one specialised psychiatric hospital in Southern Finland. The hospital offers treatment for patients with severe symptoms. Participants for the study were recruited from six closed psychiatric wards (one psychogeriatric ward, two forensic wards, two acute psychiatric wards, and one psychosis rehabilitation ward). These wards were purposefully selected [21]. The Finnish mental health legislation determines the use of seclusion and mechanical restraint (Mental Health Act 1116/1990, 22 § 21.12.2001/1423). Seclusion and mechanical restraint may be used to ensure the safety of patients, staff, and property. When a patient is put in seclusion, they are placed in a designated room fit for this purpose. Mechanical restraint entails the patient being restrained with belts and straps. Patients may also be physically or chemically restrained during seclusion (Mental Health Act 1116/1990, 22 § 21.12.2001/1423).

The seclusion rooms in the study wards were simple, with limited furniture, such as a soft mattress on the floor and a soft cube that staff brought to the seclusion room to be used as a table or seat. Some of the rooms had a toilet and a sink. If a seclusion room did not have a toilet, the staff escorted the patient to a toilet outside the seclusion room. If a patient needed to be mechanically restrained, a bed was placed in the room for this purpose.

Each room had an automatic ceiling-mounted camera that recorded the events. The camera's primary purpose was to allow constant observation of the patient by the staff. The camera monitors were located at the nurses' station. According to legislation (Mental Health Act 1116/1990), on each shift, one nurse should be responsible for the care of a restricted patient.

2.4. Participants. The participants were patients and healthcare staff present in seclusion and mechanical restraint events. Convenience sampling method was used on a "first-come, first-served" basis to select the participants [22]. Convenience sampling was considered a viable option due to its simplicity. It was impossible to identify beforehand which patients and staff would participate in seclusion and restraint events. The events were not deliberately chosen. The aim was to include events that reflected standard practice. Each of the events had the potential to be included in the study until the sample target was reached. The target sample size was 30, representing the organisation's typical monthly seclusion and mechanical restraint events. The inclusion and exclusion criteria for the video recordings are elaborated in Table 1.

2.5. Data Collection. The data were collected between 6 November 2016 and 30 March 2017. The same data are used in another study [23], where safety hazards were identified in seclusion and mechanical restraint events. Both studies are part of a larger research and development project (The Safety of Nurses during Seclusion and Restraint of a Psychiatric Patient, EriTurva 116157). Video-based observation was chosen as the data collection method because it allows the collection of rich and objective data [24]. Due to ethical and safety reasons, it was not possible to have external observers present during the seclusion and mechanical restraint events. Video observation produces raw data that are not dependent on the observers' notes [25].

Table 1: Inclusion criteria for video recordings.

	Patient	Nurse
Inclusion criteria for video recordings		
Informed consent	x	x
Admitted to study ward	x	
Over 18 years of age	x	x
Volunteer	x	x
Exclusion criteria for video recordings		
Not suitable for the study*	x	
Not from the study ward	x	
Under the age of 18	x	n/a

*Patient assessed by a physician to have diminished capacity to provide informed consent.

Before the data collection, a one-day training session was organised for the contact nurses from each study ward. The purpose of the training was to ensure the ethical recruitment of participants. During the data collection, the contact nurses collected background information for each video recording with a form. The information included the type of coercive measure used, the reason for the measure, the duration of the coercive measure, and exclusion with reason. The researcher (JV) called the contact nurses weekly. The contact nurses asked for the patient's willingness to participate during the debriefing of the seclusion and mechanical restraint events. When consent was acquired, JV requested the hospital's technical staff to extract the corresponding video recordings and save them to an external hard drive. Only the video recordings where consent was acquired was included in the data and watched by the researchers. Those recordings where consent was not acquired were destroyed by the hospital technical staff. One patient contacted the researchers after they had provided informed consent and requested to withdraw from the study. This recording was not included in the data.

2.6. Ethical Considerations. The study was approved by the Ethics Committee of Helsinki and Uusimaa Hospital District (12/13/03/2016). The permission to conduct the study was obtained from the study organisation. In addition, the Regional State Administrative Agency and the Office of the Data Protection Ombudsman evaluated the designed data collection and storage process prior to the study. A steering committee was organised to oversee that the study followed ethical standards. A representative of the nursing association was included in the study to ensure that the rights of the participating healthcare professionals were respected.

The data consisted of sensitive material. Therefore, we meticulously followed the principles of the Declaration of Helsinki [26]. The following steps were taken to protect their confidentiality and privacy. First, the security of the data was ensured by storing it on computers (without an Internet connection) behind locked doors. Second, only the researchers who transcribed the data (JV, ML, and JB) had access to the raw data. Third, healthcare professionals and patients were pseudonymised. Third, no demographic information, such as age, gender, ethnicity, diagnosis, educational background, or work experience, was reported.

Informed consent was acquired from patients retrospectively during the standard debriefing of the event. A physician evaluated the competency of the patients to participate. Nurses working on the wards signed informed consent forms before the data collection after receiving oral and written information about the study. During the data collection, if nurses involved in the seclusion and mechanical restraint events did not want their part of the recording to be used in the study, they wrote down the date and time they were in the seclusion room. These sections of the video recordings were excluded from the analysis.

Seclusion and mechanical restraint were not conducted just to be studied. Instead, they occurred as standard practice. However, in the planning of the study, it was decided that if any serious incidents occurred during seclusion and mechanical restraint events, they would be reported to the hospital executives. One incident identified in the study was reported to the director of nursing and the chief physician.

2.7. Data Analysis. The data were prepared for analysis by watching the video recordings with TruVision Navigator Player 5.0 software and transcribed. Only predefined aspects were transcribed: "what happens?", "who is present?", "what are they doing?", and "where are they located?" Transcriptions resulted in 400 pages of text (range 2–79 per recording). Transcriptions were imported to NVivo 12 [27] to facilitate the analysis.

This study used qualitative deductive content analysis [28]. The Roper–Logan–Tierney Model of Nursing [10] was used as a framework. The data analysis focused on the model's central tenet, the activities of living which represent patient needs [10]. Responding to patient needs and the realisation of nursing care were explored through nursing interventions.

The researchers immersed themselves in the data by reading the transcripts multiple times. A structured categorisation matrix containing the 12 activities of living was generated. It was used to code the nursing interventions. A coding unit was selected to represent one nursing intervention. Then, four randomly chosen video recordings (10%) of data were coded separately with the categorisation matrix by JV and TL. After the initial coding, each code was given a definition, inclusion and exclusion criteria, and an example from the data. One researcher used the categorisation matrix for the remaining video recordings (JV). New codes still emerged at this stage. Subcategories were generated by collating and combining codes under the categories [28]. The categorisation is illustrated in Figure 1.

2.8. Credibility. We aimed to ensure the credibility of this study by acknowledging the truth value [29]. We recognised that the researchers' experiences working as nurses in psychiatric hospital care strengthened the identification of nursing interventions but could have also resulted in bias. The consistency of the analytical process was assessed with inter-rater reliability, the similarity of how coders code the data [30]. Cohen's Kappa was used because it considers
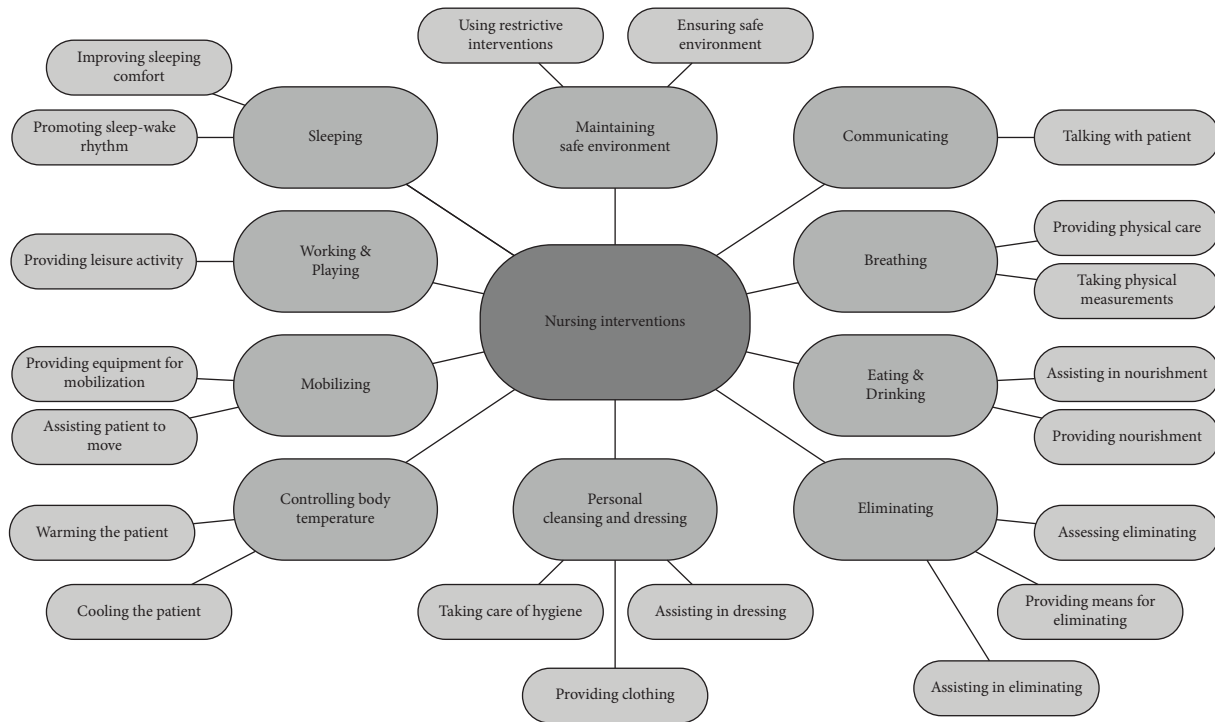
FIGURE 1: Categorisation of nursing interventions.

agreement by chance [31]. Cohen's Kappa of 0.951 was reached, considered as excellent inter-rater reliability. We also considered neutrality and how the findings reflected reality. This meant that researchers (MV, JB, ML, and PS) who had previous experience with the phenomenon but were not involved in the analysis reviewed the findings. Changes were made based on their feedback. Lastly, we recognised the transferability of the findings to different contexts [32]. Due to differences in guidelines, processes, and practice of seclusion and mechanical restraint, the transferability of the findings to different settings should be carefully considered.

3. Results

3.1. Characteristics of the Data. Thirty-six video recordings of seclusion and mechanical restraint events were analysed. The total duration of the video recordings was 1094.71 hours (mean: 31.95, median: 17, range: 2.42–211.33, SD: 43.41). Most video recordings showed patients during seclusion ($n = 34$, 94%), while two used mechanical restraints. The reasons for the use of seclusion or mechanical restraint included possible harm to others ($n = 14$), self-harm ($n = 11$), encumbering the treatment of others ($n = 9$), and self-endangerment ($n = 2$).

The total time of nurses' presence was 2787.9 minutes (mean: 77.44, median: 24.5, range: 2.7–807.7, SD: 177.1). The average percentage of time nurses spent in the seclusion and mechanical restraint events was 4.1% of the duration of the recorded time (median: 1.9, range: 0.3–56.5, SD: 9.26). There were 609 nursing care visits to seclusion and mechanical restraint events (mean: 16.9, median: 8.5, range: 2–114, SD:

32). Table 2 shows the data characteristics, including the video recording number (nr.), number of nursing care visits, duration of nurses' presence, duration of video recording, and percentage of nurses' presence in the video recording.

3.2. Nursing Interventions in Seclusion and Mechanical Restraint Events. The nursing interventions identified were categorised into ten categories (Figure 1) The examples of the data are quotations from the video recording transcripts.

3.2.1. Maintaining Safe Environment. Nurses maintained safety by using further restrictive interventions. The nurses used chemical and physical restraints during seclusion and mechanical restraint. Chemical restraints were used orally and intramuscularly. Physical restraint was when they held the patient by the arms, set the patient physically on the ground, or prevented the patient from moving.

Less restrictive interventions were used to maintain a safety by preventing the patient from leaving the seclusion room. In addition, safety was maintained by nursing interventions that focused on ensuring a safe environment. Nurses searched for likely forbidden items and checked different areas of the seclusion room, e.g., behind the toilet and under the mattress. Nurses removed items, such as a food tray and clothing, from the seclusion rooms for safety. Nurses also performed bodily searches on patients for items that did not belong in the seclusion room.

"A nurse comes close to the patient and checks the pockets of his shirt and pants. –recording nr. 25"

TABLE 2: Data characteristics.

Video recording nr.	Nursing staff visits (n)	Duration of nurses' presence, mean, and min-max (SD) in minutes	Duration of video recording	Percentage of nurses' presence in video recording (%)
1	24	58.4, 2.4, 0.1–13.9 (3.2)	32 h 35 min	3
2	17	56.2, 3.3, 0.1–9.0 (3.3)	11 h 30 min	8.2
3	4	2.7, 0.7, 0.2–1.5 (0.6)	2 h 25 min	1.9
4	12	21.8, 1.8, 0.1–6.0 (1.8)	20 h	1.8
5	25	87.9, 3.4, 0.3–15.5 (3.8)	17 h 40 min	8.5
6	15	39.7, 2.6, 0.2–9.6 (2.9)	21 h 48 min	3.0
7	18	27.2, 1.4, 0.0–6.2 (2.0)	40 h 13 min 40 sec	1.1
8	31	53.9, 1.7, 0.0–9.8 (2.5)	23 h 38 min 25 sec	3.8
9	6	11.8, 2.0, 0.4–6.7 (2.4)	8 h 15 min	2.4
10	4	19.9, 5.0, 0.1–14.7 (6.6)	12 h 50 min	2.6
11	3	4.6, 1.5, 0.1–4.2 (2.3)	10 h 10 min	0.8
12	9	13.2, 1.5, 0.1–5.7 (1.9)	14 h 45 min	1.5
13	15	40.4, 2.7, 0.0–25 (6.4)	26 h 20 min	2.6
14	12	32.2, 2.7, 0.1–8.5 (2.7)	18 h 35 min	2.9
15	6	7.3, 1.2, 0.1–2.2 (0.9)	11 h 40 min	1.0
16	4	3.5, 0.88, 0.3–1.3 (0.5)	5 h 40 min	1.0
17	5	4.9, 1.0, 0.1–3.2 (1.3)	15 h 50 min	0.5
18*	2	5.0, 2.5, 1.0–3.9 (2.1)	2 h 46 min	3.0
19	7	12.1, 1.7, 0.8–3.4 (1.0)	11 h 5 min	1.8
20	5	52.5, 10.5, 0.0–38.3 (16.3)	11 h	8.0
21	20	60.6, 3.0, 0.0–26.2 (6.4)	72 h 5 min	1.4
22	54	99.7, 1.8, 0.0–10.4 (2.2)	211 h 20 min	0.8
23	27	30.0, 1.1, 0.1–2.0 (0.6)	39 h 20 min	1.3
24*	8	807.7, 90.0, 1.1–485 (168.1)	23 h 50 min	56.5
25	21	84.5, 4.0, 0.1–30.7	23 h 50 min	4.2
26	3	21.8, 7.3, 0.1–15.9 (8.0)	14 h 40 min	0.3
27*	114	757.5, 4.6, 0.0–121 (12.3)	170 h 50 min	7.3
28	39	140.3, 3.5, 0.1–16.9 (4.4)	90 h	2.6
29	35	130.6, 3.6, 0.5–27.7 (5.2)	53 h 20 min	4.1
30	7	20.9, 3.0, 0.5–11.9 (4.0)	18 h 35 min	1.9
31	7	11.0, 1.6, 0.1–3.0 (1.2)	13 h 35 min	1.4
32	8	12.6, 1.6, 0.1–7.0 (2.3)	13 h 35 min	1.6
33	7	9.0, 1.3, 0.0–4.3 (1.5)	14 h 35 min	1.0
34	6	6.7, 1.1, 0.2–2.0 (0.6)	16 h 20 min	0.7
35	4	8.7, 2.2, 1.0–4.2 (1.5)	16 h 10 min	0.9
36	25	31.1, 1.3, 0.1–2.9 (0.7)	39 h 14 min 17 sec	1.3
Total	609	2787.9, 77.4, 2.7–807.7 (177.1)	1094 h 42 min 17 sec	4.1

The duration of the video recordings is presented in hours and minutes. The duration of nurses' presence is presented in minutes. *Mechanical restraint.

3.2.2. Communicating. Nursing interventions related to communication involved simply talking with the patient. The communication was conducted either face-to-face or through the seclusion room door. In some situations, the nurses also used non-verbal communication, e.g., touching the patient on their shoulder or arm while talking to the patient. Most of the communication was brief.

> "The patient talks with the nurse through the door and points to the sink. –recording nr. 1"

3.2.3. Breathing. Nursing interventions focused on the patient's physical condition by providing physical care and taking physical measurements. To provide physical care, nurses used different wound care products to care for scratches and wounds that the patient suffered during

seclusion or mechanical restraint. Nurses were also observed using injections to the stomach area of mechanically restrained patients. Most likely, this was anticoagulation medication to prevent deep venous thrombosis. Nurses took vital physical measurements of the patient during seclusion and mechanical restraint. Most notably, electrocardiographs (ECG) and blood samples were taken, as well as body temperature and blood pressure. Additionally, a breathalyser was used for patients who were likely intoxicated.

> "The nurse measures the patient's blood pressure while he is sitting and while he is laying down. –recording nr. 2"

3.2.4. Eating and Drinking. Nurses routinely provided nourishment opportunities for patients. They also ensured that the water tap (in rooms equipped with a tap) was

functioning so that the patient had access to fresh drinking water. In rooms without a tap, the nurses brought drinking water to the patient. The nurses brought food and drinks to the patient at different times of the day. Nurses fed the patients if they could not eat or drink by themselves. This was mainly for patients who were mechanically restrained and could not, therefore, move their arms freely.

"The nurse feeds the patient crackers and water. –recording nr. 20"

3.2.5. Elimination. The nurses provided the patients with means for elimination and assisted or assessed elimination. This was done by nurses ensuring the functioning of the toilet in the seclusion rooms that had a toilet. In the rooms with no toilet, the nurses provided a urine bottle to patients, which the nurses emptied when filled. Nurses also assisted the mechanically restrained patients with elimination (setting the bedpan in place, giving the patient a urine bottle, and removing the patient's pants).

"Two nurses came to the seclusion room, removed the blanket from the patient, and put a bedpan under the patient. –recording nr. 29"

In addition, some of the patients needed verbal guidance for elimination. Nurses used speech and pointing motions to direct patients to the toilet or use a urine bottle. The degree of elimination was assessed by measuring the amount of urine. The nurses weighed some of the patients with a scale to assess how much weight the patient had lost from urinating and defecating.

3.2.6. Personal Cleaning and Dressing. Nursing interventions were aimed at assisting in dressing and hygiene. Nurses cared for the patients' hygiene by giving them products such as a toothbrush, toilet paper, paper towels, or cleansing wipes. Nurses assisted patients who were unable to wash themselves. Nurses provided bedding and clean clothes for patients. Some were designated hospital clothes, and some patients were given their clothes. Nurses helped patients maintain cleanliness by taking dirty clothes and bedding out. At the beginning of seclusion events, hospital practices dictate that a patient must wear hospital clothes during seclusion and mechanical restraints. Nurses would therefore undress the patient from their clothes and dress them in hospital clothes. On some occasions, patients resisted undressing and dressing.

"Nurses dress the pyjamas forcefully on the patient. –recording nr. 4"

3.2.7. Controlling Body Temperature. Nurses controlled the body temperature of the patients by cooling them down and warming them up. Nurses cooled the patients down by taking a blanket off the patient or opening the seclusion

room window when the patient was mechanically restrained. The patients were warmed up when nurses tucked them into the bed with blankets. Nurses tucked patients in mechanical restraints more often because the patients were not able to do it themselves.

"The nurse enters the room and sets two blankets on top of the patient. –recording nr 29"

3.2.8. Mobilising. Nursing interventions focused on providing equipment and assisting patients in mobilisation. Nurses would frequently bring a padded cube into the seclusion room that the patient could use as a chair to sit on or as a table, so that patient could have a better position to eat. Also, when patients were mechanically restrained, nurses would lift or lower the bed, depending on the patient's needs.

The nurses assisted patients in mobilising by holding their hands to help them get up from or down to the mattress. Nurses also guided the patient to sit on the mattress by holding their hand and pointing towards it. In some events, the nurses would lift the patient and carry the patient to the seclusion room.

"Nurses 1 and 2 lift the patient from the mattress, and the patient is passive and does not set his feet on the ground. Nurses 1 and 2 lift the patient by his armpits, and nurses 3 and 4 take his legs, lift him in the air, and carry him out of the seclusion room. –recording nr. 2"

When patients were mechanically restrained, the nurses adjusted the straps and positioned the patient's arms and legs. Furthermore, nurses would open the straps to allow patients to freely move their arms or legs.

3.2.9. Working and Playing. Nursing interventions focusing on patients' needs to work and play were only conducted in one seclusion event. The nurses provided the patient with magazines to read. Nurses changed out the magazines multiple times during the event.

"The nurse comes to the seclusion room with a bunch of magazines. –recording nr. 3"

3.2.10. Sleeping. Nursing interventions were aimed at supporting patients' sleeping. This mainly occurred when a patient was in mechanical restraints by adjusting the pillow under the patient's head. In addition, nurses took care of the patient's sleep cycle by turning off the lights in the evening and leaving them off throughout the night. During the day, nurses attempted to support the patients' sleep-wake rhythm by waking up the patients during day, by turning on the lights, or by physically waking up the patients.

"Two nurses come close to the patient, and one nurse leans over and wakes the patient by touching his shoulder. –recording nr. 6"

4. Discussion

This study explored nursing interventions during seclusion and mechanical restraint events in psychiatric inpatient care. The findings reveal that these interventions focused on patients' basic needs. Based on the findings of this study, assessment could not be made whether nursing care was sufficient. Previous studies on patients' experiences have reported that care during seclusion and restraint is insufficient to meet patients' needs [4]. This is opposite of nurses' perceptions, as a recent study found that nurses perceive that basic nursing care is never or rarely missed in psychiatric care [33]. The disparity between the perceptions of nurses and patients regarding good care has been widely reported in the literature [34]. One argument is that the needs of patients with psychosis can be difficult to assess due to aggressive behaviours [35] and patients' difficulty in expressing their needs. Regardless, patients have expressed that they need nurses to care for them if they cannot do so themselves [3, 4]. Therefore, it is the responsibility of nurses to identify and respond to the patient's needs with nursing interventions.

In this study, nurses and patients were together, on average less than 5% of the duration of seclusion and mechanical restraint events. The lack of nurses' presence during seclusion and mechanical restraint events has already been recognised in Finland by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT). According to their report from a preliminary visit to a Finnish psychiatric hospital, there was a lack of supervision of secluded patients, and visits to seclusion rooms were limited: on average six visits per day [36]. In our data, we recognised that nurses observe and communicate with patients through the door (potentially also through the camera, but this is not visible in the data). Nevertheless, the median number of nurses visiting to seclusion room was 8.5 (mean: 16.9) resulting in long durations where nurses were not present in the seclusion room. This is in stark contrast with the best practice recommendations where patients in seclusion should be observed in their physical presence, meaning inside the room every 15 minutes [37]. Observation of patients during seclusion and mechanical restraint is critical, not only to ensure the safety of the patients [38] but also to identify patients' needs and respond to them with nursing interventions. The possibility for nurses to observe and provide patients with nursing interventions might be dictated not by patients' preferences or needs, but nurses' decisions and schedules. These are greatly affected by the staff shortages [12].

In this study, the nursing interventions and patient visits were characterised by task orientation; nurses entered the seclusion room, performed multiple nursing interventions during one visit, and exited quickly. Similar task orientation can be seen in studies of nurses' work time allocation, where most of the work time is spent on short, direct, or indirect tasks [39]. Staffing levels may be one reason for task orientation. In addition, the broader culture of psychiatric hospital care emphasises safety, risk assessment, and control over therapeutic interactions and milieu [40], which based on our interpretation is reflected in the practice of seclusion and mechanical restraint.

Patients have reported a lack of interaction during seclusion and mechanical restraint events [12]. Our study identified that little time was spent on interaction with patients. The quality of the interaction also matters. At best interaction during seclusion and mechanical restraint events can provide comfort and a sense of compassion [12]. In our study, we were merely able to identify some interaction moments; due to methodological limitations, we could not analyse the content or quality of these interactions. Yet, quick, task-oriented visits to the seclusion room do not seem to allow for therapeutic interaction. In the Roper–Logan–Tierney Model of Nursing, non-verbal communication is emphasised along verbal communication [10]. Use of non-verbal communication during seclusion and mechanical restraint can be one option to relieve anxiety and distress. However, the appropriateness of non-verbal communication is important, as one that projects negativity decreases patient satisfaction, while one that signals warmth increases patient satisfaction [41].

If seclusion and mechanical restraints are used, the needs of the patients should be assessed, and nursing interventions are required to address them. The Finnish Mental Health Act (1116/1990, 22§ 21.12.2001/1423) states that it is the responsibility of nurses that patients receive adequate treatment and care during seclusion and mechanical restraint events. When using seclusion and mechanical restraint, the acute needs of the patients need to be identified and attended to, and the holistic needs of the patients should be recognised and provided for if possible [3, 4, 12]. In developing and assessing the practice of seclusion and mechanical restraint, organisations providing psychiatric inpatient care ought to follow the developed best practice recommendations [37]. These recommendations extend NICE guideline for Violence and aggression: short-term management in mental health, health, and community settings [38] beyond evidence by incorporating the human rights aspect and consensus of expert professionals and experts by experience [37].

The use of video observation provided an opportunity to explore nurses' actions during seclusion and mechanical restraint events in psychiatric inpatient care. Considering the complexity of seclusion and mechanical restraint situations, video observation is a tool that can capture and portray the numerous interactions that occur at the same time. Despite being able to provide rich data on the event in question, observers can miss an activity, which does not mean that this activity was not performed [15]. In our study, the significant missed activity was the content of the interaction and communication. Video observation has been used before to describe nursing interventions and to compare the frequency and elapsed time between nursing activities between two units, which has resulted in a rather superficial description of the nursing activities [42]. This could be due to the lost contextual information surrounding the event being videoed.

In this study, the identification and categorisation of nursing interventions were based on the Roper–Logan–Tierney nursing model [10]. However, due to the limitations of the data, the model could not be used in its entirety. It was impossible to assess the factors (biological, psychological, sociocultural, environmental, and politicoeconomic) that influenced the activities of living [10]. In this study, the model was considered appropriate as nursing interventions were explored in general, and the focus was not only on the central interventions of psychiatric nursing but also on nursing care holistically [9]. A more thorough application of the Roper–Logan–Tierney nursing model to assess nursing interventions would require using multiple data sources to determine how patients' needs are assessed, how interventions are planned, and how their outcomes are evaluated [43].

4.1. Limitations. The study holds limitations. The recordings of the events only included video, not audio, and the quality of the video was relatively low due to the cameras being located on the ceiling behind a safety glass, limiting the analysis of the verbal and non-verbal communication. Nevertheless, we attempted to analyse the non-verbal communication between patients and nurses as much as possible. Six video recordings included staff members who had not given informed consent; therefore, out of the total duration of the video recordings, 12 hours and 13 minutes were excluded. This amounts to 25% of the of the nurses' presence in seclusion and mechanical restraint events.

The practice of seclusion and mechanical restraint observed in this study reflects existing standard practice in the study organisation, which is influenced by the organisation's guidelines and the Mental Health Act (1116/1990, 22 § 21.12.2001/1423). However, these determine when and how seclusion and mechanical restraint should be used but does not necessarily reflect best practice.

The video recordings were collected between 2016 and 2017. Seclusion and mechanical practices may have since developed and changed. Thus, the findings might not describe current practices. However, previous studies have reported that the implementation from research to practice can take up to 17 years [44]. The use of convenience sampling may have led to selection bias for patients and nurses who did and did not participate in the study. In addition, the sampling and recruitment might have led to underrepresentation [22] because, potentially, events that included issues in the care were not included. The partial elimination of video recordings was based on the decision by the Ethical Committee. Sections of the video recording were eliminated because some healthcare professionals did not want to be included in the study. However, we justified their inclusion in the study as they provided valuable information.

Triangulation of data with patient and nurse interviews, patient documents, and nursing notes could have supported our understanding of nurses' decisions and identified the need behind the nursing interventions. Despite its limitations, this study explores which and how nursing interventions are used in standard practice of seclusion and mechanical restraint in psychiatric inpatient care. Based on the findings, the efficacy and quality of nursing care cannot be assessed.

4.2. Implications for Nursing Practice. The use of seclusion and mechanical restraint is considered psychiatric intensive care, where there is a need for constant observation and the possibility for interaction between patients and staff. The findings of this study show that in the standard practice of seclusion and mechanical restraint, these are not met. Instead, nursing interventions during seclusion and mechanical restraint focus on providing routine care with brief visits to the seclusion room. These findings show that attention is needed to focus on the observation of patients and interaction with them and nurses during seclusion and mechanical restraint events. In organisations' attempts to improve seclusion and mechanical restraint practices, these findings can be reflected upon as to which aspects of seclusion and mechanical restraint practice likely require attention in other psychiatric inpatient care settings too.

5. Conclusions

This study provides new insight into nursing interventions conducted during standard practice of seclusion and mechanical restraint events in psychiatric inpatient care. Nursing interventions were characterised by task orientation and focused on basic needs. The interventions focused less on warm and compassionate interaction. The quality of the interaction and communication between patients and nurses could not be assessed in depth in this study due to methodological limitations; future research studying the interaction between nurses and patients in the context of seclusion and mechanical restraint is therefore needed. Because previous studies have reported unmet patient needs during seclusion and mechanical restraint [3, 12], more attention is needed to develop seclusion and mechanical restraint practices so that the various needs of patients, not only physical but also psychosocial, are considered. Further study is needed to determine the nursing interventions that best meet these needs.

Data Availability

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to containing information that could compromise the privacy of research participants.

Ethical Approval

This study was approved by the Ethics Committee of Helsinki and Uusimaa Hospital District (12/13/03/2016). Confidentiality was maintained throughout the whole study.

Consent

Written informed consent was acquired from the participants.

Conflicts of Interest

Acknowledgments

References

[1] S. Dahan, G. Levi, P. Behrbalk, I. Bronstein, S. Hirschmann, and S. Lev-Ran, "The impact of "being there": psychiatric staff attitudes on the use of restraint," *Psychiatric Quarterly*, vol. 89, no. 1, pp. 191–199, 2018.

[2] M. Chieze, S. Hurst, S. Kaiser, and O. Sentissi, "Effects of seclusion and restraint in adult psychiatry: a systematic review," in *Frontiers in Psychiatry*, vol. 10 p. 491, Frontiers Media S.A, 2019.

[3] L. Askew, P. Fisher, and P. Beazley, "What are adult psychiatric inpatients' experience of seclusion: a systematic review of qualitative studies," *Journal of Psychiatric and Mental Health Nursing*, vol. 26, no. 7–8, pp. 274–285, 2019.

[4] L. Askew, P. Fisher, and P. Beazley, "Being in a seclusion room: the forensic psychiatric inpatients' perspective," *Journal of Psychiatric and Mental Health Nursing*, vol. 27, no. 3, pp. 272–280, 2020.

[5] E. Oldland, M. Botti, A. M. Hutchinson, and B. Redley, "A framework of nurses' responsibilities for quality healthcare—exploration of content validity—exploration of content validity," *Collegian*, vol. 27, no. 2, pp. 150–163, 2020.

[6] I. J. Mills, "A person-centred Approach to holistic Assessment," *Primary Dental Journal*, vol. 6, no. 3, pp. 18–23, 2017.

[7] F. Frauenfelder, T. van Achterberg, I. Needham, and M. Müller Staub, "Nursing diagnoses in inpatient psychiatry," *International Journal of Nursing Knowledge*, vol. 27, no. 1, pp. 24–34, 2016.

[8] G. L. Dickens, R. Ion, C. Waters, E. Atlantis, and B. Everett, "Mental health nurses' attitudes, experience, and knowledge regarding routine physical healthcare: systematic, integrative review of studies involving 7,549 nurses working in mental health settings," *BMC Nursing*, vol. 18, no. 1, pp. 16–21, 2019.

[9] D. A. Richards, A. Hilli, C. Pentecost, V. A. Goodwin, and J. Frost, "Fundamental nursing care: a systematic review of the evidence on the effect of nursing care interventions for nutrition, elimination, mobility and hygiene," *Journal of Clinical Nursing*, vol. 27, no. 11–12, pp. 2179–2188, 2018.

[10] N. Roper, W. Logan, and A. J. Tierney, *The Roper Logan Tierney Model of Nursing: Based on Activities of Living*, Churchill Livingstone, London, UK, 2001.

[11] F. Frauenfelder, M. Müller-Staub, I. Needham, and T. van Achterberg, "Nursing interventions in inpatient psychiatry," *Journal of Psychiatric and Mental Health Nursing*, vol. 20, no. 10, pp. 921–931, 2013.

[12] T. Hawsawi, T. Power, J. Zugai, and D. Jackson, "Nurses' and consumers' shared experiences of seclusion and restraint: a qualitative literature review," *International Journal of Mental Health Nursing*, vol. 29, no. 5, pp. 831–845, 2020.

[13] S. Cowman, A. Björkdahl, E. Clarke, G. Gethin, and J. Maguire, "A descriptive survey study of violence management and priorities among psychiatric staff in mental health services, across seventeen european countries," *BMC Health Services Research*, vol. 17, no. 1, pp. 59–10, 2017.

[14] T. Power, A. Baker, and D. Jackson, "'Only ever as a last resort': mental health nurses' experiences of restrictive practices," *International Journal of Mental Health Nursing*, vol. 29, no. 4, pp. 674–684, 2020.

[15] L. E. Weston, S. L. Krein, M. Harrod et al., "Using observation to better understand the healthcare context," *Qualitative research in medicine & healthcare*, vol. 5, no. 3, p. 9821, 2021.

[16] E. H. Golembiewski, N. R. Espinoza Suarez, A. P. Maraboto Escarria et al., "Video-based observation research: a systematic review of studies in outpatient health care settings," *Patient Education and Counseling*, vol. 106, pp. 42–67, 2023.

[17] O. Asan and E. Montague, "Using video-based observation research methods in primary care health encounters to evaluate complex interactions," *Journal of Innovation in Health Informatics*, vol. 21, no. 4, pp. 161–170, 2014.

[18] N. Mays and C. Pope, "Qualitative Research: observational methods in health care settings," *BMJ*, vol. 311, no. 6998, pp. 182–184, 1995.

[19] B. C. O'Brien, I. B. Harris, T. J. Beckman, D. A. Reed, and D. A. Cook, "Standards for reporting qualitative research: a synthesis of recommendations," *Academic Medicine*, vol. 89, no. 9, pp. 1245–1251, 2014.

[20] M. Kara, "Using the roper, logan and tierney model in care of people with COPD," *Journal of Clinical Nursing*, vol. 16, no. 7b, pp. 223–233, 2007.

[21] S. Campbell, M. Greenwood, S. Prior et al., "Purposive sampling: complex or simple? Research case examples," *Journal of Research in Nursing*, vol. 25, no. 8, pp. 652–661, 2020.

[22] J. Jager, D. L. Putnick, and M. H. Bornstein, "More than just convenient: the scientific merits of homogeneous convenience samples," *Monographs of the Society for Research in Child Development*, vol. 82, no. 2, pp. 13–30, 2017.

[23] J. Varpula, M. Välimäki, T. Lantta, J. Berg, P. Soininen, and M. Lahti, "Safety hazards in patient seclusion events in psychiatric care: a video observation study," *Journal of Psychiatric and Mental Health Nursing*, vol. 29, no. 2, pp. 359–373, 2022.

[24] J. Booth, I. Davidson, J. Winstanley, and K. Waters, "Observing washing and dressing of stroke patients: nursing intervention compared with occupational therapists. What is the difference?" *Journal of Advanced Nursing*, vol. 33, no. 1, pp. 98–105, 2001.

[25] C. F. Mackenzie, F. Hu, Y. Xiao et al., "Video acquisition and audio system network (VAASNET) for analysis of workplace safety performance," *Biomedical Instrumentation & Technology*, vol. 37, no. 4, pp. 285–291, 2003.

[26] World medical association, "World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects," *Bulletin of the World Health Organization*, vol. 79, no. 4, pp. 373-374, 2001.

[27] QSR International, *NVivo (Version 12) [Computer Software]*, Burlington, MA, USA, 2017, https://support.qsrinternational.com/nvivo/s/.

[28] S. Elo and H. Kyngäs, "The qualitative content analysis process," *Journal of Advanced Nursing*, vol. 62, no. 1, pp. 107–115, 2008.

[29] R. Forero, S. Nahidi, J. De Costa et al., "Application of four-dimension criteria to assess rigour of qualitative research in emergency medicine," *BMC Health Services Research*, vol. 18, no. 1, p. 120, 2018.

[30] C. O'Connor and H. Joffe, "Intercoder reliability in qualitative research: debates and practical guidelines," *International Journal of Qualitative Methods*, vol. 19, Article ID 160940691989922, 2020.

[31] J. Cohen, "A coefficient of agreement for nominal scales," *Educational and Psychological Measurement*, vol. 20, no. 1, pp. 37–46, 1960.

[32] T. Stenfors, A. Kajamaa, and D. Bennett, "How to assess the quality of qualitative research," *The Clinical Teacher*, vol. 17, no. 6, pp. 596–599, 2020.

[33] B. Joseph, V. Plummer, and W. Cross, "Mental health nurses perceptions of missed nursing care in acute inpatient units: a multi-method approach," *International Journal of Mental Health Nursing*, vol. 31, no. 3, pp. 697–707, 2022.

[34] D. Thomas, P. Newcomb, and P. Fusco, "Perception of caring among patients and nurses," *Journal of Patient Experience*, vol. 6, no. 3, pp. 194–200, 2019.

[35] S. W. Adams and P. T. Yanos, "Pathways to aggression and violence in psychosis without longstanding antisocial behavior: a review and proposed psychosocial model for integrative clinical interventions," *Psychiatry Research*, vol. 293, Article ID 113427, 2020.

[36] Council of Europe, *Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT)*, Report to the Finnish Government on the visit to Finland carried out by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT), Strasbourg, France. https://rm.coe.int/1680a25b54, 2020.

[37] K. De Cuyper, E. Vanlinthout, J. Vanhoof et al., "Best practice recommendations on the application of seclusion and restraint in mental health services: an evidence, human rights and consensus-based approach," *Journal of Psychiatric and Mental Health Nursing*, vol. 30, no. 3, pp. 580–593, 2023.

[38] NICE, *Violence and Aggression: Short-Term Management in Mental Health, Health and Community Settings*, British Psychological Society, London, UK, 2015.

[39] A. Glantz, K. Örmon, and B. Sandström, ""how do we use the time?"-An observational study measuring the task time distribution of nurses in psychiatric care," *BMC Nursing*, vol. 18, no. 1, p. 67, 2019.

[40] A. Slemon, E. Jenkins, and V. Bungay, "Safety in psychiatric inpatient care: the impact of risk management culture on mental health nursing practice," *Nursing Inquiry*, vol. 24, no. 4, Article ID e12199, 2017.

[41] S. G. Henry, A. Fuhrel-Forbis, M. A. M. Rogers, and S. Eggly, "Association between nonverbal communication during clinical interactions and outcomes: a systematic review and meta-analysis," *Patient Education and Counseling*, vol. 86, no. 3, pp. 297–315, 2012.

[42] S.-H. Bae, J. Kim, I. Lee, S. J. Oh, and S. Shin, "Video recording of nursing care activities in gerontological nursing to compare general units and comprehensive nursing care units," *Journal of Korean Gerontological Nursing*, vol. 21, no. 3, pp. 165–172, 2019.

[43] T. G. R. MacIeira, T. C. M. Chianca, M. B. Smith et al., "Secondary use of standardized nursing care data for advancing nursing science and practice: a systematic review," *Journal of the American Medical Informatics Association: JAMIA*, vol. 26, no. 11, pp. 1401–1411, 2019.

[44] Z. S. Morris, S. wooding, and J. Grant, "The answer is 17 years, what is the question: understanding time lags in translational research," *Journal of the Royal Society of Medicine*, vol. 104, no. 12, pp. 510–520, 2011.