

Research article

The Care of Acute Patients with Dementia at the Special Care Unit, “Station Silvia”: Results of an Evaluation Study

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Abstract

Background: “Station Silvia” (Silvia Ward), a Special Care Unit (SCU) at Malteser Krankenhaus St. Hildegardis, in Cologne, is associated with a unit for acute geriatrics. The unit was inaugurated in 2009 with the purpose of improving the quality of treatment given to acutely ill patients with dementia.

Objectives: In order to investigate the effects of the unit’s specialized treatment and environment, a three-step scientific evaluation was performed between 2013 and 2017.

Methods: A cohort study was carried out. with pre- and post-measurement. The primary endpoints were collected at hospital admittance and discharge. The secondary endpoints were collected continuously throughout the treatment. For the pre- and post-measurements were performed using either the Wilcoxon signed-rank test for matched samples or the t-test for connected samples. The secondary endpoints were descriptively evaluated. For these purposes, a suitable set of indicators was established to measure changes in the Activities of Daily Living (ADL), mobility, cognition and challenging behaviour. Intraindividual sequential measurements of the different indicators were performed on 393 patients.

Results: The Activities of Daily Living (ADL) and mobility improved significantly. Systematic evaluation of the prevalence of Behavioral and Psychological Symptoms of Dementia (BPSD), as well as so-called negative events, also showed favorable results as compared to published data.

Conclusions: The results of the present study indicate that the specialized treatment and environment of the SCU “Station Silvia” prevent deterioration of acutely ill patients with dementia. Some indicators even show significant improvement in these risk patients.

Keywords: Activity of daily living; Acute patient; Cognitive impairment; Dementia; Geriatrics; Special care unit

Introduction

In recent years, the number of very old patients in acute hospitals has increased significantly. According to data from the German Federal Statistical Office, the proportion of patients over 65 years of age was just under 50% in 2017. This is associated

with the increase in inpatient treatment of people with cognitive disorders.

Hospital statistics do not provide reliable information about the frequency of dementia in hospitals, as it is often a secondary diagnosis that is not relevant to the patient’s cure, and is therefore often not recorded as a diagnosis. It is currently assumed that from 10 to 20% of hospital patients have dementia [1]. The prevalence of dementia in an international study review ranges from 3.4 to

43.3% [2]. In a multicentre study involving 1,469 patients in 172 different wards, all aged 65 or older, 40% of those examined had mild to moderate cognitive impairments [3]. This group of patients has a particularly high risk of suffering complications during their stay in hospital.

The care of acute patients with the secondary diagnosis of dementia represents a major challenge for all those involved in diagnostics and therapy. Patients often deteriorate in their cognition [4], fail to maintain medically necessary bed rest [5], and are at higher risk of developing delirium during their stay in hospital [6-8]. Overall, the recovery process requires considerably more time, as well as increased nursing and medical care [2,9,10].

Against this background, it is important to make hospitals increasingly sensitive to dementia. This may include training and sensitisation measures and structuring of daily routines, in conjunction with structural, spatial and therapeutic adjustments [11].

Since 1990, individual hospitals have been developing ward concepts, or specialised wards, and equipping them with material and personnel to better meet the special needs of cognitively impaired patients. These wards are characterised by the fact that they are regularly equipped as described in the DGG position paper (including a protected area, dining or living room, own therapy area, own trained staff) and implement a concept of interdisciplinary treatment and care which is specific to dementia [5]. Experience with said special wards has been largely positive [12-18]. However, the current literature lacks controlled and stable analyses of robust indicators for testing the patient-related results of the individual measure.

In 2009, Cologne-based Malteser Hospital St. Hildegardis introduced a specialised open ward, Station Silvia, for the care of acutely ill, multimorbid geriatric patients with the secondary diagnosis of dementia. Patients with mild and moderate delirium were explicitly included. The ward has eight beds and a common room (living and dining area). It is organisationally connected to a geriatric ward, though separated structurally. Everyday companions support the interdisciplinary team of doctors and nurses, in addition to occupational and physiotherapists [19].

The care concept is based on the Swedish Silviahemmet philosophy, a palliative care concept for people with dementia. Palliative care is based on the fact that dementia diseases are usually chronically progressive and not curable diseases which are mainly concerned with symptom relief and quality of life.

According to Silviahemmet, the patient and their individual needs are at the centre of the care philosophy. The primary goals are symptom control, maintenance or improvement of life quality, and the promotion of existing resources [20,21]. Silviahemmet uses a palliative four-pillar model with the pillars “Patient-centred care and symptom control”, “Communication and relationship”,

“Teamwork” and “Family members”. The concept uses methods such as biography work, reminiscence, validation and milieu design - including colouring - to promote orientation.

On the Station Silvia ward, Silviahemmet’s principles are consistently implemented:

In addition to the classic professional groups such as medical service, nursing and therapy, Patient-Centred Care is also present in the form of everyday companions looking after the patients, among other things. In addition to individual care, social bonding takes place within the group.

If possible, meals are taken together at the table in the common room (dining/living room). No tray system is implemented. As much as possible, examinations and therapies are performed within the ward area, in order to avoid unnecessary patient transport, and thus unrest among patients. The general conditions of the Station Silvia ward in regards to structural and organisational standards are summarised below:

General Conditions of the Station Silvia Ward

- Segregated ward area, shielded from the actual hospital operation.
- Access to all of the hospital’s diagnostic and therapeutic options.
- Graduated cognitive screening for inpatient admission (AMT 4).
- Extended Geriatric Assessment (pain, fall, nutrition).
- Adapted therapy planning.
- Decentralised, ward related therapeutic services.
- Day structuring, activation and distraction.
- Daily and weekly schedule for the patients.
- Optical barriers such as the lamination of doors and the use of sensors in cases of severe psychomotor agitation.
- All employees trained in the Silviahemmet care concept (dealing with dementia, patient-centred care, symptom control, communication, teamwork, work with relatives).
- Close involvement of relatives/people of reference.

Patients are admitted to the Station Silvia ward both as transfers from other hospitals and as internal transfers within the hospital itself, as well as by direct referral. New admissions to the Malteser Hospital St. Hildegardis who are 75 years or older receive cognitive (AMT4 test) and geriatric screening (ISAR) in the emergency room/outpatient department. If the screening is positive, a decision regarding admission to the Station Silvia ward is made on the basis of the following criteria:

Admission Criteria for the Station Silvia Ward

- Acute patient (illness that requires hospitalisation).
- Mild or moderate dementia, with an MMSE score of 10-24.
- Expected response to day-structuring, milieu-based therapeutic measures.
- No acute infection requiring isolation, severe delirium or other circumstances that result in prolonged immobility.
- No high internal monitoring requirement (central venous catheter, balancing, complex infusion medication).

In 2013, the management of the Malteser Hospitals decided to commission a cohort study in order to collect clear indications of possible benefits related to the specialised treatment on the Station Silvia ward. Depending on the results, the decision might be made to install this care model in other hospitals. The Deutsches Institut für angewandte Pflegeforschung e.V. (German Institute for Applied Nursing Research inc. - DIP) and the Vallendar University of Applied Sciences were commissioned to plan and conduct the study, which was successfully completed in May of 2017.

The study was financed by a private foundation in addition to Malteser Germany’s own funding. The foundation exercised neither a direct influence on the design or the questions, nor a business-like relationship in terms of the scientific support or interest in exploitation.

The authors state that there are no conflicts of interest and that all studies described were conducted in accordance with national law and the 1975 Helsinki Declaration (current, revised version).

Materials and Methods

The study examined 393 multimorbid patients with the (secondary) diagnosis of dementia who were treated as inpatients on the Station Silvia ward between 2013 and 2017. Patients with mild to moderate delirium were explicitly included.

Prior to the evaluation of the station, an international literature search on “Special Care Units” was carried out by a research assistant, with the following results:

There were no indications of a concrete and directly transferable evaluation concept, nor of a set of indicators to be used on a binding basis.

Published indicators included the occurrence of challenging behaviours, observed positive emotional state, possible dementia-associated neuropsychiatric symptoms, cognitive function level, everyday competence and quality of life [12-17, 22-26].

There were also very different approaches with regard to the structure and procedures of the units specialising in people with dementia. For the German-speaking countries, the DGG position

paper described, for the first time, central and common structural features of wards for the treatment of patients with dementia [5]. However, a more detailed methods paper, describing meaningful evaluation criteria for said special care units, is not yet available.

The study is a cohort study which was carried out during the ward’s ongoing daily operation, under real and non-experimental conditions. Due, on the one hand, to the small size of the ward, and on the other hand the ethical implications of ensuring the best possible care for patients with dementia, randomisation of the sample was not performed. Instead, a full survey of all patients was conducted over the study period from October, 2013, to January, 2017.

The inclusion criterion was cognitive impairment, as measured by MMSE, of 10 to 24 points, or, the presence of a dementia-specific diagnosis. Exclusion criteria were persistent bedriddenness and acute infections that severely affect the general condition of the patient, such as norovirus or MRSA infections. This was justified by the fact that patients with persistent bedriddenness and/or acute infections are not able to participate in the therapeutic measures, nor benefit from the measures taken to structure their everyday lives. Aforementioned patients were treated in the neighbouring acute geriatric ward.

Against the background of the few conceptual recommendations for such a study, the evaluation project was oriented towards the five-phase model of Campbell, et al. [27]. According to the model, the study is to take place in phase II and was designed accordingly.

In the first approach, possible endpoints were defined and used as primary or secondary endpoints, according to their relevance. In order to be able to assess these endpoints, a separate set of indicators was created from clinical standard assessments (e.g. MMSE, Barthel Index, etc.). Additionally, researched assessments (deMorton Mobility Index, hand strength measurement, etc.) and defined events from literature and other assessments (e.g. fixations close to the body and distant from the body, aggressive and agitated behaviour, etc.) were employed.

The set of indicators used should meet the following requirements: The parameters collected should have practical relevance and be able to reflect changes in the areas of the primary endpoints (pre-post comparison). The situation should be similar to the indicators for the secondary endpoints. However, the focus was not on a pre-post comparison here, but on the continuous monitoring of patient behaviour.

The patients’ ability to cope with everyday life, mobility and physical strength were identified as the primary endpoints, as these dimensions are important for patients when it comes to their general quality of life [28], or for them to continue their previous lives in their homes and social environments. They are also a predictor of health in very old people [29]. The primary endpoints

were assessed at the time that the patients were admitted (with a maximum delay tolerance of 48 hours) and on the day of discharge (48 hours before discharge, at the earliest).

The concrete assessments for the operationalisation of these dimensions, and the people responsible for carrying out this data collection, are shown in Table 1.

The manual force measurement, according to Mathiowetz [30], was determined using the following measuring device: Type number of the hand force measuring device: Grip Saehan DHD1 (DTS), MSD Europa, Belgium.

Care-relevant criteria were selected as secondary endpoints. These were specifically the so-called challenging behaviours of patients during hospitalisation. Furthermore, undesirable nursing phenomena were identified from the literature and operationalised for this project. These include the use of mechanical (remote or near-body) movement-restricting measures, as defined by Koczy and Beische [31]. In addition, the fall frequency of patients was recorded.

The ward nursing staff was responsible for the collection of secondary endpoints. In order to obtain a uniform, definitional basis for the phenomena to be observed, the DIP wrote a manual

containing all necessary working definitions, including case studies. This handbook was accessible to all nursing staff at all times and the handling was continuously monitored. The items contained in the manual were taken from the CMAI [32]. Further items were taken from the work of Schütz and Füsgen [33].

The data were collected in continuous patient observation and recorded on documentation sheets prepared for this purpose. Accordingly, for each nursing staff shift (morning, evening and night), the frequency with which the patients showed challenging behavior, along with whether and what kind of undesirable nursing phenomena occurred, was recorded separately.

All staff involved in the study was trained in data collection at the beginning of the project, and subsequently received follow-up training every six months. In addition, a DIP research associate was on the ward at least two days a week during the entire duration of the project, in order to be available to answer questions from the data collectors and to train newly recruited staff in the event of staff fluctuations.

The reliability of data collection, on the other hand, was not systematically checked.

Interference in data collection naturally increased during periods of poorer staffing (e.g. holidays or in instances of illness).

Indicator	Occupational group	Point of Time
Cognition: MMSE Mini-Mental-State-Examination (MMSE) Folstein: cognition test	Occupational therapy	Admission
Mobility: TUG, DEMMI Timed-up-and-Go-Test, deMorton-Mobility-Index: mobility test	Physical therapy	Admission, Discharge
Physical Strength: hand strength device [30] Hand strength device Grip Saehan DHD1, MSD Europe, Belgium	Occupational therapy	Admission, Discharge
Activity of Daily Living (ADL): Barthel-Index; Barthel-Index: measurement of everyday skills	Nursing	Admission, Discharge
Challenging Behaviour and undesired nursing phenomena: Self-created documentation sheets with items from the Cohen-Mansfield-Agitation-Inventory [32] and Schütz and Füsgen [33]	Nursing	Continuously
Measures restricting movement Continuous documentation on a tally sheet specially created for this purpose	Nursing	Continuously
Frailty Self-created documentation sheets modified from Fried et al. [34]	Doctor	Admission

Table 1: Indicator set, occupational group and point of time of the assessment test.

Instruments such as the Geriatric Depression Scale Short Form (GDS) and the CAM test for the assessment of delirium (short form), which are widely used standard tests, were also used to characterise the patient population under investigation.

Methodological Approach to Data Evaluation

The data obtained in the process were descriptively processed by the DIP, and the interference-statistical analyses were carried out by the Department of Statistics and Standardised Procedures of Nursing Research at the PTHV.

Two of the patient-related indicators were determined using scales that were tested using the Rasch model for ordinal data: the de Morton Mobility Index and the Barthel Index [29].

The Wilcoxon Sign Rank Test for paired samples was used to assess potential changes in patients, as most variables are not normally distributed or only an ordinal data level is available. For interval-scaled data (hand force) the T-test for paired samples was used.

Results

Sample Description

Tables 2 to Table 4 show the basic patient data. The sample

consists of 476 cases. This is the total number of patients admitted to Station Silvia during the evaluation period. Of these, 83 cases were excluded from the evaluation because they did not meet the Station Silvia admission criteria (inconspicuous MMSE value or lack of dementia-specific main or secondary diagnosis). Reasons for misallocation included a lack of consistency regarding the sufficiently strict application of admission criteria or the allocation of acute patients in case of bed shortages. Patients excluded from the evaluation were, in most cases (exceptions included medical reasons such as transfer to another ward or to the I.C.U.), further treated in Station Silvia. A total of 393 cases were therefore evaluated. The rate of misallocation was 17.4%.

On the other hand, due to the limited capacity of only 8 beds, not all patients for whom there was an indication were given a place on the Station Silvia ward. In case of capacity bottlenecks, decisions regarding bed occupancy were made by either the head physician or the senior physicians.

Due to the occasional difficulty encountered in data collection related to health care practice (lack of compliance, possible limitations in perception, etc.), the size of the sample varies depending on the instrument used.

	Patients	n=393	n=393	n=393	n=285	n=155	n=80
gender		age patients	length of stay in hospital days	length of stay Silvia ward days	MMSE score	GDS score	CAM test delirium
	female 74% male 26%						
average		83,7	18,94	16,04	17,1	2,49	yes 18,5%
median		84	19	16	18	2	no 81,5%
minimum		64	4	2	0	0	
maximum		99	54	44	26	11	
percentiles	25	79	16	13	13	0	
	75	89	21	19	22	4	

Table 2: Basic Sample Data and standard test’s results of the patients treated on Station Silvia.

Referral n=321	in %	From where?		Discharge to where?	
		n=381	in %	n=378 in %	
referral by general practitioner or specialist	27,1	from home	85,8	To home	50,3
Referral from surgical clinic	34	comes from assisted living	6,3	to assisted living	10,8
Referral from internal clinic	19	comes from stat. short-term care	0,5	to stat. long-term care	21,7
Referral from neurolog. clinic	5,6	from stat. long-term care	7,3	in short-term care	15,6
Referral from urological clinic	0,6			to other clinic	0,5
Hildegardis internal	11,2			deceased	1,1
Transfer by Hildegardis emergency room	0,6				
Transfer from psychiatric hospital	1,6				
Transfer from day clinic	0,3				

Table 3: Referring physicians and type of accommodation before admission or upon discharge.

Table 5 summarises the results of the pre-post measurements. All tested changes are highly significant. Figure 1 visualises the gain in everyday competence of the patients as measured by the Barthel Index.

Main diagnostic groups	n=384	Percentage of cases	Patients	n=301	in %
Surgical/Orthopaedic		24,5		non frail	13,4
Diagnostic group				pre-frail	33,4
Internal				frail	53,2
Diagnostic group		15,3			
Neurological/Psychiatric		12			
Diagnostic group					
Urological diagnosis group		2,9			
Dementia specific		42,7			
Diagnostic group					
Delirium specific		1,8			
Diagnostic group					
Other diagnostic group		0,8			

Table 4: Diagnostic groups and frailty.

Barthel index n = 381 (ad.) 361 (dis.)	Barthel index (ad.)	Barthel Index (dis.)	DEMMI test n = 311 (ad.) 270 (dis.)	DEMMI (ad.)	DEMMI (dis.)
Mean value	44,672	53,795	Mean value	47,907	52,741
Median	45	55	Median	48	57
Minimum	0	0	Minimum	0	0
Maximum	100	100	Maximum	100	100
Percentiles	25	40	Percentiles	25	40,5
	75	60		75	62

Table 5: Barthel index and DEMMI test at admission vs. discharge (each $p < 0.001$).

Everyday Competence

The mathematical mean of the Barthel Index as an indicator of everyday competence increased during inpatient treatment from 44.7 to 53.8 points, and the median from 45 to 55 points.

Mobility

The value of the DEMMI test as an indicator of mobility also increased from 47.9 to 52.7 points, and the median from 48 to 57 points, reflecting increased mobility during treatment.

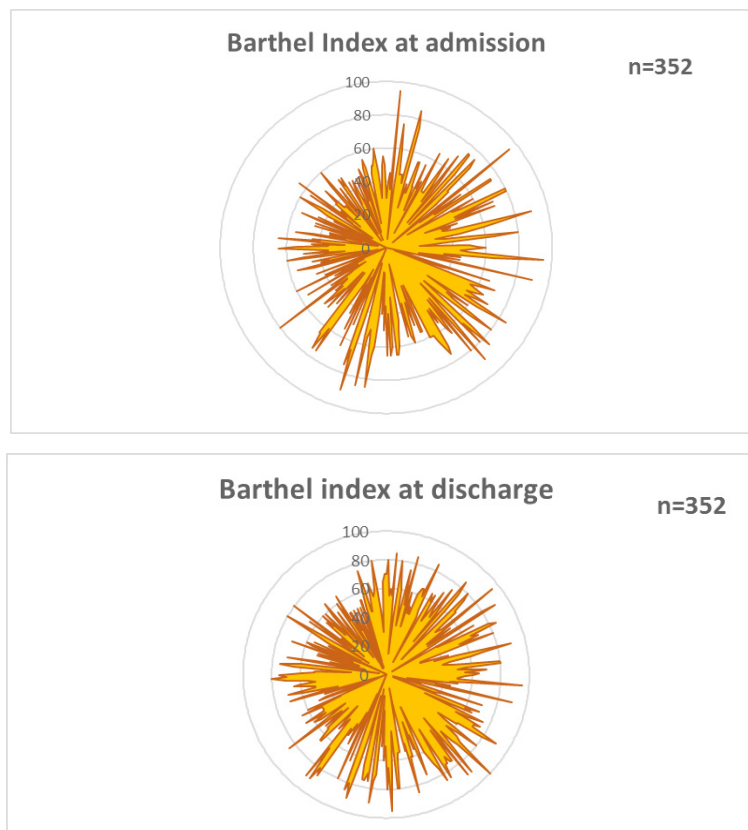


Figure 1: Polar diagram Barthel Index: Sum scores at Admission and Discharge ($p < 0.001$).

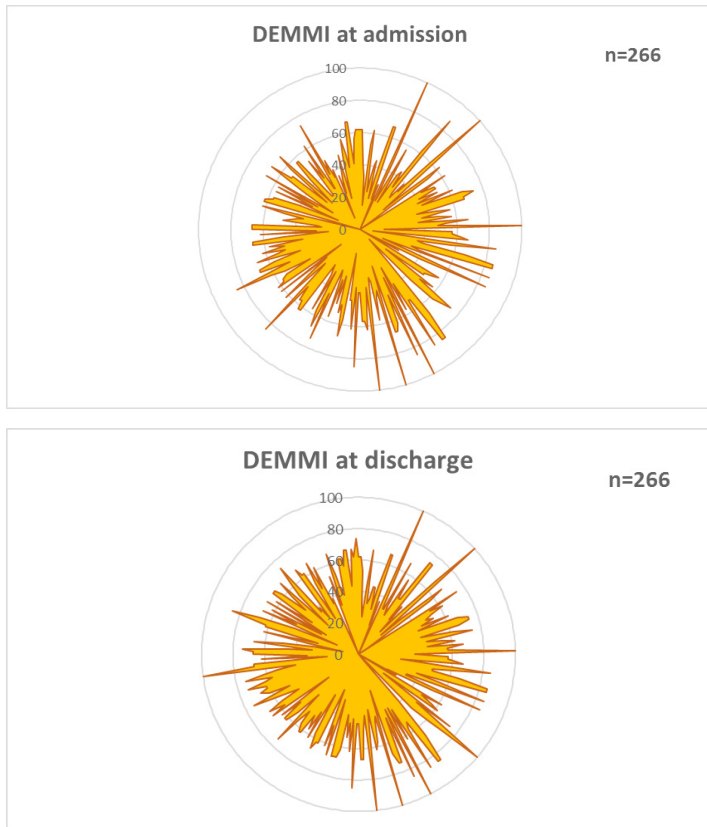


Figure 2: Polar Diagram DEMMI Test: change between admission and discharge (p<0.001).

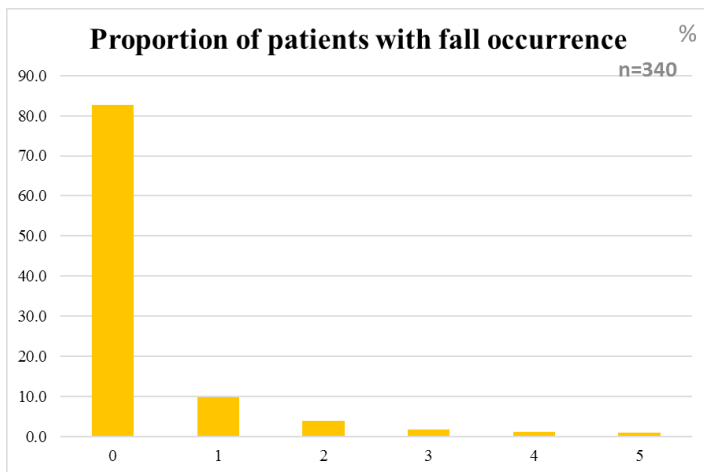


Figure 3: Occurrence of falls during the stay at Station Silvia.

Manual force

The evaluations of the manual-force measurement are shown in Table 6.

Hand force n=283 (ad.) n=229 (dis.)		Mean value	Average standard deviation
right	admission	15,139	7,5142
	discharge	15,87	7,273
left	admission	14,055	7,241
	discharge	14,88	7,344

Table 6: Hand force at admission and at discharge (p<0.001).

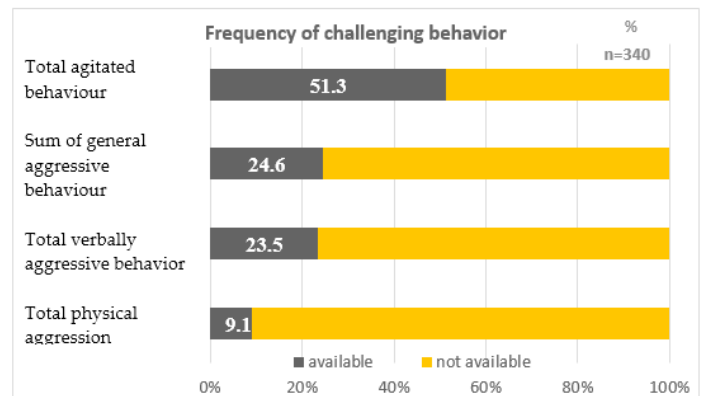


Figure 4: Prevalence of BPSD (black= agitated or aggressive).

Challenging behavior (BPSD)

Figure 4 describes the frequency of challenging behaviour during the entire stay at Station Silvia. The recording was carried out during the entire stay of the patients.

Undesirable care phenomena

Figure 5 gives an overview of the continuously registered undesirable care phenomena in the investigated collective.

Movement restricting measures

Figure 6 shows the total number of movement-restricting measures during the entire study period (3 years).

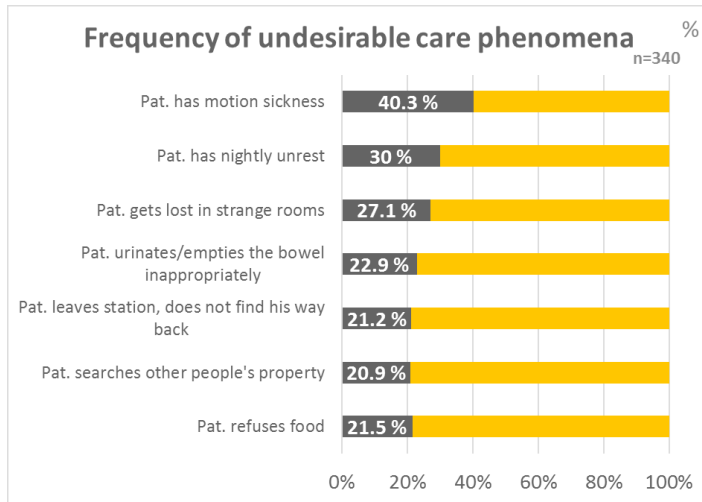


Figure 5: Prevalence of undesirable care phenomena (black=unwanted).

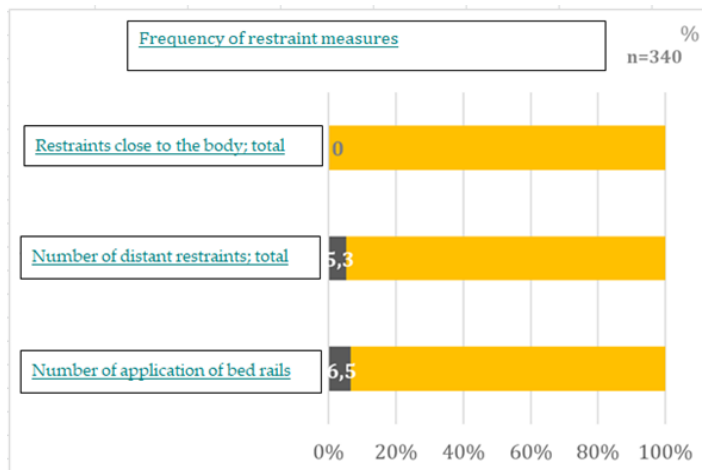


Figure 6: Physical restraint measures.

Discussion

The aim of dementia-sensitive care in acute hospitals is to prevent the functional and cognitive deterioration of inpatients with dementia, as described in the literature. The additional goal of a better treatment outcome is sought by reducing the high complication rate in this patient group during their inpatient stay.

Using a differentiated set of indicators, this study was able to show that multimorbid geriatric patients diagnosed with dementia (including mild to moderate delirium) not only suffered no disadvantages from inpatient treatment, but in fact benefited from the care and environment on the Station Silvia ward, a “Special Care Unit” for dementia patients. A significant improvement in everyday competence and mobility was demonstrated during inpatient treatment. Hand strength also increased significantly among the observed group, 53.2% of which exhibited frailty while

33.4% manifested pre-frailty.

The results differ from previous data on the quality of care for people with dementia in acute hospitals. Said publications regularly describe a deterioration in patients’ ability to cope with everyday life, mobility and cognition [6,9,25,35], partly due to an increased prevalence of delirium in dementia. Challenging behavior, and the need for fixation close to the body, are more common [36]. Hospital mortality is increased in patients with dementia [35].

Zieschang, et al. [37] observed comparable increases in ADL (Barthel increase from 30 to 45 points) and mobility (increase in the Tinetti test score from 11 to 15 points), as per their data from the Station GISAD ward [18]. However, the proportion of patients transferred to another ward or clinic was significantly higher there, 15% in total (compared to 0.5% in the local study). The same applies to the proportion of deceased patients, at 4% (vs. 1.1% on Station Silvia ward).

The patient structure differs mainly in that the group from the Station Silvia ward included more surgical-orthopaedic patients and the Station GISAD ward included more internal medicine patients. The proportion of neurological patients, however, was approximately the same. The proportion of patients with delirium was significantly higher on the Station GISAD ward, at 59% (vs. 18.5% upon admission to the Station Silvia ward).

The data discussed here also confirm the results of a study by Rösler, et al. [38], with patients in a cognitive-geriatric unit (CGU). In this ward, a significant increase in the Tinetti test score was found, as compared to a control group. This, in turn, is comparable to the increase in the DEMMI test encountered in this study. However, only a relatively low number of patients with hip-related fractures were included in the evaluation of the DEMMI test (n=96).

In this study, special attention was paid to the frequency of challenging behaviour (BPSD), and the data obtained were compared with the literature.

The frequencies of challenging behaviour reported in the literature are mainly based on retrospective assessments by caregivers or the relatives of the patients observed. One study describes a 74.8% prevalence of challenging behaviour in two acute care hospitals in the U.K. [39]. A study by Wancata, et al. [40], shows a similar prevalence of 82.2% in four Austrian hospitals, also taking into account mild symptoms.

On the other hand, a single occurrence of agitation during the entire stay on the Station Silvia ward was described in only 51.3% of patients. The figures for physical aggression (9.1%) and verbal aggression (23.5%) can be explained by their inconsistent and difficult classification within the literature. The general prevalence of aggressive forms of behaviour on the Station Silvia ward is of 24.6%. Sampson, et al. [39] show a prevalence of 56.5%, more

than twice as much as on the Station Silvia ward, as per.

In this study, the incidence of BPSD was continuously recorded for each patient throughout their entire stay, not only at admission and discharge, but also during every nursing shift. In comparison, BPSD was recorded selectively in other studies, e.g. at admission and discharge: In Zieschang, et al. [37], agitation was documented in 50% of cases at admission, and 26% at discharge. Comparability with our data is difficult, because no record of agitation was made during the entire period between admission and discharge. This signifies that a larger number of events may not have been recorded at all.

A lower incidence of challenging behaviour in comparable comparison collectives can, among other things, be evaluated as an expression of sensitive patient management. Another possible explanation could be a lower proportion of delirious patients (18.5% when admitted to the Station Silvia ward).

However, discussion regarding the assessment of challenging behaviour is still ongoing [41].

In terms of unwanted care phenomena, there is still little comparable data available which is related to the individual items. Schütz and Füsgen [33] researched the significance of some of these items as stress factors for caregivers, but no frequencies were recorded.

On the other hand, there is sufficient literature on the phenomenon of falls, though it is heterogeneous. During their stay on the Station Silvia ward, 17.4 % of the patients suffered one or more falls. The fall rate was thus lower than in a comparative study [37], where a fall frequency of 25% was described. As such, the fall rate per 1000 days of treatment on the Station Silvia ward was 10 falls, or just under 4 falls per patient per year. In a review of the literature from the German Network for Quality Development in Care (DNQP), a rate of 6 falls per year (16 falls per 1,000 days of treatment) is described for patients with dementia [36]. This shows that the number of falls recorded on our ward is lower. These circumstances must be taken into account, particularly with regard to the very restrained use of custodial measures, as the risk of falls is often used as a justification for bodily restraints, as per [31].

In this context, the number of restraints performed was surveyed. None of the patients cared for on the Station Silvia ward required physical restraints adjacent to the body during their inpatient stay. Compared to the published data, this can be considered a very good result [42].

In Zieschang, et al. [37], a bed barrier had to be used in 13% of patients. The rate on the Station Silvia ward is also significantly lower than in that study, at 6.5%.

According to the Pflge thermometer (Care Thermometer) 2014 [43], restraint utilizing bed rails was employed out 4.4 times

per week among the sample investigated there, and the use of table mounted restrains, maintaining limbs away from the body, was carried out 2.4 times per week. Restraining belts, close to the body and thus preventing the patient from getting up, were used an average of once per week (MW 0.97). On the other hand, not a single body-adjacent restraint was employed on the Station Silvia ward during the evaluation, which lasted over 3 years. Remote or bed-rail restraints were used less than once a month.

Of course, the limitations of the study approach must also be seen in the light of the positive evaluation results presented here. As explained above, the study is to be classified as a cohort study in phase II, in accordance with the five-phase model of Campbell, et al. [27]. In the next phase, it would be desirable to conduct a controlled, randomised trial (phase III).

However, the results of this evaluation study clearly show that the care of acute patients with the (secondary) diagnosis of dementia at a Special Care Unit can be beneficial for the patients cared for there, whereas the literature regularly describes deteriorations of this patient group during hospitalisation. The patients examined on Station Silvia ward showed improvements in their everyday competence, strength and mobility in the course of the study.

Challenging behaviour, unwanted care phenomena, falls and restraints occur less frequently in the evaluated SCU ward compared to literature.

Summary

A number of this study's indicators demonstrate that the care concept implemented in conjunction with Station Silvia is suitable for preventing functional deterioration in patients with dementia and has a demonstrably positive influence on the course of the patients' illness in individual areas.

The results of this evaluation study clearly show that the care of acute patients with the (secondary) diagnosis of dementia at a Special Care Unit can be beneficial for the patients cared for there.

Conclusion for Practice

- Patients in acute hospital with dementia often deteriorate.
- For some years now, special ward concepts have been developed for this patient group.
- The results of the study show that, during their stay in hospital, deterioration can be prevented and, in some cases, relevant improvements can even be achieved with acute dementia patients in a Special Care Unit.
- As the care of acute patients with the (secondary) diagnosis of dementia in special care units can apparently be beneficial to patients, this concept should be further implemented and researched. Controlled trials are needed to better prove the effectiveness of this concept.

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