

# BMJ Open Patients' experiences of being treated for acute illness at home as an alternative to hospital admission: a qualitative study in Denmark

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## ABSTRACT

**Objective** We aimed to investigate the experiences of Danish patients treated at home for an acute illness instead of being hospitalised.

**Design** This study had a qualitative design inspired by the methodology of interpretive description. Data were collected through semistructured interviews.

**Setting** Home treatment was conducted by a team of nurses (n=10–15) supported by physiotherapists and physicians, all affiliated with an emergency department, located in the capital region of Denmark. Interviews were conducted between August 2020 and April 2021.

**Participants** Twenty-one patients, aged 34–94 years, narrated their experiences of being treated at home for an acute illness.

**Results** The overarching theme in our analyses was that 'being the centre of the nurses' attention provided safety, patient involvement and quality of life during home treatment'. The following six themes emerged from analyses: (1) exclusive attention facilitates involvement and activity; (2) hospitals are for the sick; (3) maintaining a meaningful everyday life; (4) the hospital exudes productivity and busyness; (5) family relations and roles are maintained; (6) and concerns of deterioration.

**Conclusions** From a patient's perspective, home treatment made sense and was perceived as a quality improvement. Being the centre of nurses' attention induced a sense of safety, involvement and enhanced quality of life among patients during the treatment course for an acute illness.

## INTRODUCTION

In the years to come, the number of inpatient beds will be reduced, and simultaneously, the number of older and multimorbidity people will increase.<sup>1</sup> In Denmark, it is estimated that the number of older people aged over 74 years will double in 2025 compared with 2015. Older people have a greater need for health services than younger people, and older people aged 75–90 use twice as many healthcare services as citizens in their 50s.<sup>2</sup> However, older people are not a homogeneous group, and especially those older than

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Interpretive description is an applied approach seeking knowledge to inform practice.
- ⇒ Researcher triangulation reduced the risk of preconception by colouring the results.
- ⇒ Social desirability is always a possible bias in interviews.
- ⇒ The self-selection of participants may have introduced sample bias.

80 years, who have one or more chronic diseases, frequently use emergency departments (EDs).<sup>3–5</sup> Currently, many older people are hospitalised due to acute dehydration, constipation or urinary tract infection (UTI). Such conditions may be avoidable with an early preventive effort yielding benefits to both patients and the healthcare system.<sup>1 5 6</sup>

To ensure that there is no mismatch between available hospital beds and patient care, there is an increasing need to diagnose and treat patients with acute illnesses without hospitalisation. When these challenges are considered by Danish policymakers or leaders, the need for strengthening cross-sectoral collaboration and the 'closely cohesive healthcare system' often emerges. The closely cohesive healthcare system aims to strengthen cross-functional collaboration and move the treatment of selected patients from a hospital setting to the patients' own homes. Hospitals are expected to contribute to outpatient functions and thereby contribute to prevent unnecessary admissions and, at the same time, meet the patients' needs for greater flexibility.<sup>1</sup>

## Cross-sectoral and interdisciplinary team (TST)

In an attempt to operationalise the closely cohesive healthcare system, a TST was launched as a pilot project (2019) in three municipalities and later extended to all eight

municipalities. TST was a pragmatic attempt to address the existing and future challenges between the ED and the associated municipalities. The identified challenges were patients who did not benefit from, would be put at risk by or were opposed to hospitalisation, a future lack of hospital beds, lack of emergency skills and experiences in the municipalities, lack of knowledge about municipal conditions among ED staff, electronic healthcare systems and organisational frameworks that did not support collaboration across sectors and thereby a coherent course of treatment for the patients.<sup>1</sup>

The TST was developed as a collaboration between the ED, the eight surrounding municipalities and representatives from the 300 affiliated general practitioners (GPs) who serve approximately 350 000 citizens living in the northern part of the capital region of Denmark. An average of 150 patients are admitted to the ED every day, and approximately 60% of the admitted patients are older than 65 years.

TST works within three focus areas: (1) Patients admitted for follow-up treatment in their own homes according to the medical plan and treatment responsibility of the ED physicians, (2) early detection of disease to prevent unnecessary ED contact and subsequent hospitalisation and (3) counselling municipality nurses and GPs about nursing issues and instrumental tasks. This paper is restricted to evaluating 'Patients admitted for follow-up treatment in their own homes according to the medical plan and treatment responsibility of the ED'.

Patients admitted to TST have many different diagnoses and derived treatment and care needs. As an example, TST can provide intravenous fluids or medication administration, primarily antibiotics, blood tests via point-of-care testing, and clinical observations and measurements such as vital signs, blood pressure, blood gasses, microbiology specimens, etc. The tasks are performed by the TST nurses supported by ED physicians or in close collaboration with nurses from the municipality.

All patients referred to TST have been examined and assessed as requiring hospitalisation by a senior physician in the ED. At the same time, based on the patient's overall condition, the physician has assessed that the patient is stable and treatment safely and in accordance with the patient's wish can be handled in the patient's own home. Patients who do not require hospitalisation will not be referred to TST. If the patients' condition can be handled by the GP or the municipality nurses, the patients are discharged without admission to TST.

TST consists of 10–15 nurses, 3 physiotherapists and 3 specialist physicians affiliated with the ED. TST works under the medical responsibility of the ED and refers to the head nurse and chief physician in the ED. Home treatment is conducted by outgoing TST nurses supported by in-house physiotherapists and physicians, always available by phone. TST work from 08:00 to 22:00, 7 days a week. The number of home visits has been increasing from 2020 to 2021. TST nurses delivered 1911 annual home visits to 988 patients in 2020 and 2554 home visits to 1288

patients in 2021. Half of the patients were above 80 years of age, and the most common diagnoses were UTIs, dehydration requiring intravenous fluid therapy, pneumonia and other infections requiring intravenous treatment and/or monitoring of C reactive protein.

TST is a new and innovative way to organise the treatment and care of acutely ill patients who would otherwise require hospitalisation. Although the involved healthcare professionals and leaders intuitively perceive moving treatment options from the hospital to the patients' homes as meaningful, we do not know how the patients perceive the experience of being treated at home. We assume that patients experience a quality improvement, but it is possible that they perceive it as a second-class treatment or consider it to be unsafe and anxiety-provoking to be at home when acutely ill and in need of treatment. Knowledge about the patients' experiences of being treated at home is thus essential for further developing, adjusting and improving the organisation of TST and similar organisations offering alternatives to hospitalisation for acutely ill patients. Therefore, this study aimed to investigate the experiences of Danish patients treated at home for an acute illness instead of being hospitalised.

## METHODS

This study used a qualitative design to explore the patients' perspectives and followed the methodology of interpretive description as described by Thorne.<sup>7 8</sup>

### Patients and setting

The population treated by TST is highly heterogenic why the sampling strategy was purposive and aimed at maximal variation in age, gender, diagnoses and geographical residence (municipality). Patients were recruited from an ED located in the capital region of Denmark. We invited 25 patients for interviews. Two refused due to lack of surplus; one patient moved; and another patient died before the interview was conducted. A total of 21 patients were included between August 2020 and April 2021.

The inclusion criteria were being treated at home by TST, being willing to participate in interviews, speaking Danish or English, and being able to give informed consent.

After about 18–20 interviews, there was a tendency for the participants to repeat themselves and the themes already identified, why we found it unnecessary to include further informants.

Participant characteristics are shown in [table 1](#). All characteristics are based on patients' self-reports, and we have not collected any information from the medical records.

### Interviews

Data were collected through semistructured interviews. Fourteen interviews were conducted in the participants' homes and seven by phone due to COVID-19. All interviews were recorded digitally.

**Table 1** Characteristics of the study participants (N=21)

Sex, female, n (%)	12 (57)
Age (years), mean (range)	78 (34–94)
Indication for TST admission, n (%)	
Intravenous antibiotics due to infection (UTI, pneumonia and erysipelas)	11 (52)
Titrating medical pain treatment initiated in the ED	5 (24)
Assessment of new medical treatment initiated in the ED	3 (14)
Medical treatment of constipation	1 (5)
Intravenous fluid due to dehydration	1 (5)
ED, emergency department; TST, cross-sectoral and interdisciplinary team; UTI, urinary tract infection.	

An experienced female research nurse (PEC) who had no prior involvement in TST, the ED or the municipalities conducted all interviews. We used a topic interview guide which was revised several times, as our knowledge and insights increased (box 1).

### Rigour

All research processes, from the development of the study to the discussion of the findings, were conducted in collaboration with the author group. NVivo was a valuable tool to ensure dependability and transparency of the analysis process. The researcher triangulation contributed to reducing the risk of preconception by colouring the data collection, analysis and findings.

### Patient and public involvement

Patients and the public were not involved in this study's design, conduct, reporting or dissemination plans.

### Analysis

Data analysis was conducted using an inductive thematic analysis.<sup>7 8</sup> The data analysis started immediately after the first interview and continued as an iterative process during the data collection period. After approximately

#### Box 1 Opening questions for the semistructured interview with patients admitted at home

Please tell me what happened in the days/hours before you were in contact with the hospital.  
 Please describe how you experienced being treated at home by the cross-sectoral and interdisciplinary team nurses.  
 What were your first thoughts?  
 What were your expectations?  
 Please provide some examples of  
 ⇒ Worries.  
 ⇒ Benefits.  
 ⇒ Challenges for you and/or family members.  
 Please describe how being admitted at home impacted your everyday life.  
 What was important to you during your course of home treatment?

**Table 2** Overview of the identified themes

<b>Being the centre of the nurses' attention provided safety, patient involvement and quality of life during home treatment</b>	
Exclusive attention facilitates involvement and activity.	Hospitals are for the sick.
Maintaining a meaningful everyday life	The hospital exudes productivity and busyness.
Family relations and roles are maintained.	Concerns of deterioration

every three interviews, the authors individually read or listened to each interview and made their reflective notes. Afterward, the authors met and discussed preliminary themes and the need for adjustments or additions to the interview guide. This process was repeated until all the interviews were conducted. In the next step, the first author organised data into broad-based and generic codes to obtain a sense of the whole data but at the same time to avoid early disclosure of data. These broad codes were discussed among the authors several times and were merged, revised and rewritten until all authors agreed that the nine themes represented the final findings of this study. In the last step, the transcripts or audio trail was relistened to or reread by the first and last authors to ensure consistency between the themes and the patients' voices. All themes were illustrated with selected quotes. To ensure the participants' anonymity, age is presented as a 10-year range.

### RESULTS

We conducted 21 interviews with a mean duration of 27 min. Through analysis, we identified 'being the centre of the nurses' attention provided safety, patient involvement and quality of life during home treatment' as an overarching theme covering six themes (table 2).

#### Exclusive attention facilitates involvement and activity

The patients felt unique and the centre of the nurse's attention during nurses' home visits, in contrast to previous hospitalisations, where they were one among many patients. Not having to compete with other patients for the nurse's attention was described as something positive and reassuring.

Busyness is a reality in a hospital ward, and the fact that your fellow patient suddenly becomes ill, that experience you will be spared when you are at home. The half-hour they [nurses] spent with me that was all about me. We are all selfish, and when you are sick, you want it to be about yourself. Their phone [the nurses'] rang in between, but it was not disturbing because once they hung up, they instantly concentrated on me again (ID 18, female, age 60–69 years).

Patients felt safe because nurses were able to focus and concentrate exclusively on them and their treatment.

They felt that the nurses were sincerely interested in their well-being and not preoccupied with completing the prescribed treatment as soon as possible to rush on to the next patient.

They [nurses] focused on me. They did not focus on all other patients. When a nurse walks into a patient's room, she may look at you, but her thoughts are on the next patient and the next one again. At the hospital, I did not feel that she was focused on my treatment or whether I was feeling well. It was much more impersonal in the hospital (ID 11, female, age 80–89 years).

The patients described how everything was new and different when hospitalised, in contrast to how everything, except their treatment, was as usual when they were at home. This made it much easier for them to understand their treatment plan and thereby interact and take responsibility for it. One patient described how she lost track of all medications when hospitalised. She was not able to recognise her pills because generic substitution made them look different in colour and shape, which resulted in her mistakenly receiving another patient's medication.

It is often the wrong medicine you get when you cannot keep an eye on it yourself. At home, I have control over my medication, and I cannot get other people's medication or risk that they [nurses] forget to give me something (ID 14, female, age 70–79 years).

Being in a known and safe environment gave the patients the resources needed to be involved in their own treatment. Several patients collaborated with the nurses to find creative solutions to problems that arose when a hospital treatment was to be given at home. Collaboration around these practical issues was described with a lot of humour and as a positive experience. The patients were willing to compromise to make things work at home, and some moved around furniture or decorated special rooms or spaces for remedies and medicine.

It was less practical when I had to have an IV-drip at home. We looked around the room - what could we do? It ended with two hangers and a string. We then obtained the iv-drip hung up in both the living room and the bedroom. It was quite simple, but it worked perfectly (ID 4, male, age 70–79 years).

Some patients described how the home environment meant that their spouses felt involved and participated in their treatment, which was different from hospitalisation.

I mostly lay in bed because I was feeling really bad and then it was put up on the wall inside our closet and then it hung there so nicely so I could sleep. We figured it out together, and they [the nurses] had taught my husband to peel it off in the morning (ID 6, female, age 80–89 years).

When asked directly, none of the patients felt that they received poorer quality of treatment in their home compared with being hospitalised. One informant described the home offer as a luxury treatment.

As my grandson puts it when he is super happy with something, then it is luxury, and that is how I would describe it. It is a luxury just to stick out your finger and get your infection-quants taken, stick out your arm, have your blood samples or blood pressure taken, and then follow what happened in your journal. They [the nurses] were quick to provide a report on my health platform (electronic journal), so I got a quick response and status of my measurements (ID 18, female, 60–69 years).

### Maintaining a meaningful everyday life

Several patients described experiences from previous hospitalisations where the majority of their time consisted of meaningless waiting briefly interrupted by an examination, treatment or conversation with a doctor or nurse. Waiting was perceived as a waste of precious time, despite the patients knowing that they needed the treatment to get better.

A younger man with cancer and a serious infection puts it this way:

Felt like a waste of time being hospitalized. I had nothing to do and nothing happened, except in the morning, noon, and evening. Alternatively, I had to drive an hour back and forth several times a day, and it probably would have annoyed me even more (ID 20, male, 60–69 years).

Waiting time takes up most hours of the day when hospitalised and is spent either sleeping, lying or sitting in bed, as there is no other option. The patients described that being able to do something meaningful was a major benefit of home treatment.

It is great that you can spend your time on something other than just sitting, waiting, lying, and sleeping in the hospital (ID 4, male, age 70–79 years).

Despite receiving the treatment that cured them, several patients still described a feeling of getting worse during previous hospitalisations due to boredom, worries about their loved ones at home, lack of sleep, inactivity or decreased appetite.

When you have already been in bed for four weeks, you do not want to be hospitalized for a trifle, such as cystitis. Maybe it is not a trifle, but I am not sick in the same way as when I was originally hospitalized. I do not think there is any reason to lie in bed or be in the hospital when one can cope with a home visit and a syringe. At home, you can watch TV or read books. It is easier to be sick at home. Of course, not terminally ill, just uncomfortably ill. You can go into your bed; you lie much better in your bed with your pillow and

duvet. I just want to be at home. (ID 11, female, age 80–89 years)

Patients with children felt that proximity to their children during home treatment was of great value to them. The mother of a newborn related how she could continue breast feeding during her course of treatment.

I knew it was something I had to go through, and I would much rather be at home and have the medicine hanging in a wave in our lamp than have to go to the hospital and expose myself or our little son to catch something contagious. How should I be able to look after and breastfeed him while I was hospitalized? For us, it meant a huge deal that they came here. Our oldest daughter thought it was great for all the nurses who came. She stood on a stool in the utility room and watched as they collected and prepared what they were to hang up in the ceiling to drip into her mother's arm. She thought it was fun to watch, and they [the nurses] were nice to embrace it and her too (ID 2, female, age 30–39 years).

It was of great value to patients to maintain control over their everyday lives and routines despite feeling ill and unwell.

I was in my usual surroundings, just like I used to be. I did as I used to, I made breakfast and coffee, sat and read newspapers, and took a bath. There was no significant difference. Even if you go and move a little, you just have to get yourself started (ID 8, female, age 70–79 years).

Being active and not just lying idle in bed was valued highly by the patients and perceived as something that positively affected their healing.

I was not sick in a way that made me unable to move around. Even though I had a fever and did not feel super smart, I could easily walk around and then just sit down a bit (ID 19, female, age 80–89 years).

Lack of privacy, as well as constant noise from fellow patients, staff and equipment, were described as incredibly disruptive and stressful elements during hospitalisations. The absence of disruptive elements, eating and sleeping were perceived as factors that positively affected recovery.

I was so glad that I could stay at home. I had no appetite, so I would rather eat yogurt. It was easier when I was at home, there I could eat what I wanted, and I could get hold of it. At the hospital, you cannot choose what you want to eat or decide when you want to eat (ID 7, female, age 90–99 years).

Patients with chronic diseases often incorporated daily rhythms or routines into their lives which were difficult to maintain during hospitalisations. Such patients wanted to avoid hospitalisation, unless necessary.

Of course, it may well be that, at some point, you will have to be hospitalized. However, I just felt that the times I have been to the hospital with pneumonia might have been at home with a daily visit or two. At home, I do not have fellow patients who cough and sneeze, as I do myself. It is stressful and makes it impossible to sleep, and you cannot just turn on the lights and read. It is such a small thing that makes it better at home. Here, I can watch television or read all night if I cannot sleep or I can get up and make myself a cup of coffee (ID 13, male, age 80–89 years).

### Family relations and roles are maintained

Some, especially the oldest patients, described their 'home treatment' as an extra task imposed on their spouses. However, despite this, they and their spouses would still choose home treatment over hospitalisation. Some patients were aware that due to age or widespread illness, they had a limited life span, which they did not want to spend in a hospital.

It affects my wife because it is a little more difficult and causes her more work; however, it is very nice for me to be in my home environment. At home, there is not much noise and people running around and all that. I must admit that my quality of life is disappearing and, therefore, it is better to lie at home than over there. At home, I am surrounded by all things I know. Of course, most importantly, my wife and bed. I know I am old and have a short time left (ID 5, male, age 90–99 years).

Other patients perceived that home treatment was convenient for their spouses as it did not involve travel. Patients also appreciated not being separated from their spouses because it spared them the emotional longing and worries.

I have my wife here and she does not have to drive an hour each way to get to the hospital. It is nice when you have been married for as long as us, then there are also two pairs of ears listening and that's how it has been all the way through, and my wife has participated in everything here at home (ID 15, male, age 80–89 years).

Some patients preferred home treatment as it allowed them to continue caring for their children and spouses, regardless of being ill or undergoing treatment.

I knew very well that my husband would not die of starvation, but the concern you have for your spouse and children when you are not together is painful. I am both a wife and a mother, and I worry about whether everyone is well: I prefer to put myself in the background, regardless of whether I have a high fever or not. I would very much like to do without the worry and stress I experience separated from my loved ones (ID 18, female, age 60–69 years).

### Concerns of deterioration

There was consensus among patients that they felt safe about being treated at home by nurses who always had the opportunity to contact a physician with questions or concerns. Since their treatment was originally planned in collaboration with a physician, further consultation with a physician was not required, as long as their condition was stable. Knowing that the physician could be contacted or would proactively contact them if their test results were skewed made the patients feel safe.

Fortunately, it went the right way for me, and everything was in order. However, I am convinced that if it had not gone in the right direction, then the physician would have called me and said we had to change the plan and then we had done so (ID 2, female, age 30–39 years).

Patients' worries about deterioration were calmed by having a plan and direct access to the hospital and physicians. However, one patient described the dilemma of feeling safe in a hospital and the joy of being in a familiar environment at home.

When I am in the hospital, I am happy about it, but I also miss being at home, but when I am at home, I miss the security of having nurses and physicians around me all the time (ID 16, male, age 80–89 years).

Patients had previously experienced great difficulties in getting in touch with the hospital or their GP. Direct access to nurses and, if needed, hospitals and physicians provided a feeling of safety.

I think it was a great reassurance that we had a direct number to the hospital. As the nurses stated, "you are officially hospitalized, so if there is the slightest thing, then you call us" You are hospitalized and you are registered in our system, so you do not have to go through a new admission. I am hospitalized at my own home. It felt safe to know that if I suddenly got worse or seriously ill, then we could just call or drive to the hospital. We did not have to start all over again (ID 4, male, age 70–79 years).

### Hospitals exude productivity and busyness

In contrast to being treated at home in a nice and calm environment, the hospital environment was perceived to be impersonal and cold, and the hospital staff was described as busy and stressed.

It is all too impersonal. It is just like a factory where things just get rushed through (ID 13, male, age 80–89 years).

Several patients described how during previous hospitalisations they had experienced how nurses signalled with their whole body that they did not have the time to talk to or help them. In comparison, during home treatment, nurses had the time and space to talk to patients

about the actual treatment or other topics relevant to their recovery.

It means a lot because it gave me the time and space to tell how I felt and why. If I feel that people are turning their backs, almost immediately, then I forget to tell what I want to tell, and I do not get to tell them [the nurses] that I am in pain until they have passed on to the next patient or task (ID 3, female, age 80–89 years).

Unlike previous hospitalisations, where different people drew blood samples, administered medicines and measured temperature, home treatment was a qualitative improvement in terms of coherence and continuity in their treatment, which meant that they did not have to be constantly 'alerted'.

I feel that they [the nurses] talk together and have a plan for my treatment, so I do not have to start over again if someone else comes; thus, it is usually the same ones who come (ID 3, female, age 80–89 years).

The patients felt involved in their treatment and influenced, for example, treatment times and visits. This was contrary to the hospital experience, where patients had to face uncertainty and a lack of information from health-care professionals.

### Hospitals are for the sick

The patients did not perceive themselves as seriously ill and some even downplayed their illness by describing it as 'only' cystitis or a small infection or calling themselves 'semisick'. Had they been 'really' sick, they would not have been able to receive home treatment, as they would have required close monitoring and surveillance. What characterises being 'really sick' was not elaborated, although several patients mentioned that if you need monitoring around the clock, you must be hospitalised.

I think it's great that I do not have to be hospitalized when it is not more serious. When you can walk on your feet and it is nothing more than cystitis, I think it's great not to have to be hospitalized again (ID 11, female, age 80–89 years).

The patients felt privileged and lucky to be offered treatment at home and, at the same time, grateful for the opportunity to be hospitalised if needed.

You should not be hospitalized more than necessary. It is the whole spirit of the hospital that you need to avoid. Here [at home] I have peace and I can do as I please and you cannot always do that in the hospital (ID 6, female, age 80–89 years).

Some patients stated that 'home admissions' were a meaningful way to use the healthcare resources, and that semisick like themselves, should not burden the health-care system, physicians and nurses by taking up a bed from someone sicker.

I imagine that it is a cheaper way to do it than having me admitted to a hospital. It must cost a lot of money every day to be hospitalized. It must be very cost-saving to do it this way and when it works as well as it did with me, I would recommend it (ID 4, male, age 70–79 years).

Some patients described how there always was someone sicker in the hospital and in need of more help than them. This introduced a feeling of bad conscience about hospitalisation.

When I was at home, I did not experience that I disturbed them [nurses] or wasted their time. At the hospital, I could see that many other patients needed help. I lay there myself and felt it was extravagant and unnecessary for me to be hospitalized. I had many thoughts as to whether it was appropriate that I was there (ID 3, female, age 80–89 years).

## DISCUSSION

This study contributes to the knowledge of the patient's experiences of being treated at home for an acute illness as an alternative to hospitalisation. Our findings illustrated that the patients did not experience receiving a second-rate or inferior treatment; on the contrary, they felt involved and safe throughout the home treatment.

To our knowledge, only a few studies have investigated the efficacy or effectiveness of being treated at home for acute illness versus being hospitalised in a European context, and no studies in a Danish context. Shepperd *et al* found in a randomised controlled trial (RCT) that a home hospital model for older people provided an alternative to hospitalisation,<sup>9</sup> and that hospital at home services can be a cost-effective alternative to hospital admissions for selected older people.<sup>10</sup> In the USA, Levine *et al* compared a home-hospital model with usual hospital care and found that home-hospital care reduced costs, healthcare use and readmissions while increasing physical activity compared with usual hospital care.<sup>11</sup> In a qualitative evaluation nested in the same RCT,<sup>11</sup> the results showed that compared with usual hospital care, patients treated at home had better experiences with their care team (nurses and physicians), better sleep, increased physical activity and better experiences with system factors such as admissions processes.<sup>12</sup> These qualitative results reflect some of our findings.

In our study, the positive perception of safety was described as a decreased risk of contracting hospital-acquired infections and less risk of being exposed to unintended error events such as incorrect medication or procedures. The familiar environment at home and the continuity of care gave the patients the surplus to be involved and take responsibility for their treatment, a factor known to increase care quality and decrease the risk of treatment failure.<sup>13</sup> As the treatment took place in the home environment of both patients and families, it was quite natural that family members became involved either as observers or active partners in solving practical tasks related to the treatment. Several studies on chronic diseases

describe how long-term caregiving can be a burden for the caregiver and how hospital admission can be a 'break' for the caregivers.<sup>14</sup> Our study showed that from a patient's perspective, family involvement was perceived as something positive and not a burden. However, little is known about the caregivers' perspective on short-term and temporary caregiving during home treatment, which should be explored in future research.

Being able to maintain usual family functioning and everyday life activities was important to the patients' quality of life, despite their actual life situation and age. Some of the patients were very aware that their life span was restricted due to severe illness or old age, and they felt that hospital admissions were a total waste of valuable time, except for the short time slots where they received the treatment (medication). In Denmark, patients who are stable and have a treatment plan may well be hospitalised without being seen every day by a physician. In those cases, it will be the ward nurses who provide the daily treatment and care, and the physician will only see the patient every other day. However, a physician will always be available and contacted at the patient's request or in case of worsening of the patient's condition.

Many patients suffer 'posthospital syndrome' due to factors such as deconditioning, sleep deprivation and recovery after an acute illness.<sup>15</sup> Our findings illustrate how fundamental needs such as sleep, rest, activity, nutrition and control over one's own life were preserved during home treatment at home, which contribute to patients' well-being, recovery, and quality of life. A systematic review by Scott *et al* identified no studies that investigated the level of physical activity during home treatment for acute illness in older patients. However, they found that the same population treated in-hospital spent 6.6% of their day active and performed only 882 daily steps, placing them at an increased risk of functional decline.<sup>16</sup> These results and our findings support the hypothesis that the incidence of posthospital syndrome and 'pathological inactivity' is likely to be lower among home-treated patients than in hospitalised patients, and this can potentially impact the patients' recovery and readmission rates.

Although the patients in our study were ill and underwent treatment for acute illness, concerns about deterioration were reduced because having a plan and access to the hospital gave them the feeling of being in control. Literature highlights that the feeling of being in control and able to 'self-manage' is associated with beneficial outcomes such as increased quality of life, reduced level of anxiety and risk of hospitalisation.<sup>17 18</sup>

The patients in our study perceived that the main difference between being treated at home and being hospitalised was that they were not constantly monitored by healthcare professionals and equipment. Being monitored was, in their optics, an expression of a more severe degree of illness that led them to interpret themselves as only semisick. This insight is important as the development of our future healthcare system will significantly reduce the number of hospital beds for inpatients and thereby the need to develop and test the efficacy and effectiveness of new innovative ways to treat

all kinds of patients at home regardless of the need for monitoring. Leff and colleagues offer a research agenda for evaluating ‘hospitals at home’ and point to nine research domains that have the potential to improve ‘hospital at home models’ for all key stakeholders.<sup>19</sup>

### Limitations

Patients’ fear of being infected during a hospital admission might have been reinforced by the ongoing COVID-19 pandemic and could positively have affected their experiences of being treated at home. In addition, social desirability is always a possible bias in interviews. We have been aware of this risk why the person who conducted all the interviews had no affiliation with TST, the ED or the municipalities. The risk of sample bias refers to a systematic over-representation or under-representation of a subgroup in the population. In this study, the perspectives of patients marked by severe illness or patients who have had a negative experience with the healthcare system or with the TST might be under-represented.

### CONCLUSIONS

From a patient perspective, home treatment was perceived positively as a quality improvement over hospitalisations because being the centre of nurses’ attention provided safety and involvement and enhanced patients’ quality of life during the treatment course. Several hypotheses and areas for further research emerged through this study and highlight the need for further development and evaluation of different models of home treatment as an alternative to hospitalisation.

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**Ethics approval** This study involves human participants but was not approved by to the National Committee on Health Research Ethics in Denmark as non-interventional qualitative studies do not need approval ([www.nvk.dk](http://www.nvk.dk)). This study was designed and conducted in accordance with the guidelines of the Declaration of Helsinki. All data were anonymised and carefully stored in a secure place approved by the Danish Data Protection Agency (P-2020-817) in accordance with the General Data Protection Regulation. The participants gave informed consent to participate in the study before taking part.

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**Data availability statement** Data are available upon reasonable request. Data are available upon reasonable request. All data will be in Danish.

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### REFERENCES

- 1 Udvalg om det nære sammenhængende sundhedsvæsen. Afrapportering fra udvalg om det nære sammenhængende sundhedsvæsen [Report about the closely cohesive healthcare system] 2017.
- 2 Clegg A, Young J, Iliffe S, *et al.* Frailty in elderly people. *Lancet* 2013;381:752–62.
- 3 Vest-Hansen B, Riis AH, Sørensen HT, *et al.* Acute admissions to medical departments in Denmark: diagnoses and patient characteristics. *Eur J Intern Med* 2014;25:639–45.
- 4 Gruneir A, Silver MJ, Rochon PA. Review: emergency department use by older adults: a literature review on trends, appropriateness, and consequences of unmet health care needs. *Med Care Res Rev* 2011;68:131–55.
- 5 Preston L, Chambers D, Campbell F, *et al.* What evidence is there for the identification and management of frail older people in the emergency department? A systematic mapping review. *Health Serv Deliv Res* 2018;6:1–142.
- 6 Danske Regioner. Når du har brug for os - 24 nye indsatser når du bliver akut syg eller kommer til skade [When you need us - 24 new efforts when you become acutely ill or injured] 2018.
- 7 Thompson Burdine J, Thorne S, Sandhu G. Interpretive description: a flexible qualitative methodology for medical education research. *Med Educ* 2021;55:336–43.
- 8 Thorne S. Interpretive description. In: *Qualitative research for applied practice*. New York: Routledge, 2016.
- 9 Shepperd S, Butler C, Craddock-Barnford A, *et al.* Is comprehensive geriatric assessment admission avoidance hospital at home an alternative to hospital admission for older persons? *Ann Intern Med* 2021;174:889–98.
- 10 Singh S, Gray A, Shepperd S, *et al.* Is comprehensive geriatric assessment hospital at home a cost-effective alternative to hospital admission for older people? *Age Ageing* 2022;51:afab220.
- 11 Levine DM, Ouchi K, Blanchfield B, *et al.* Hospital-level care at home for acutely ill adults: a randomized controlled trial. *Ann Intern Med* 2020;172:77–85.
- 12 Levine DM, Pian J, Mahendrakumar K, *et al.* Hospital-level care at home for acutely ill adults: a qualitative evaluation of a randomized controlled trial. *J Gen Intern Med* 2021;36:1965–73.
- 13 Ocloo J, Garfield S, Franklin BD, *et al.* Exploring the theory, barriers and enablers for patient and public involvement across health, social care and patient safety: a systematic review of reviews. *Health Res Policy Syst* 2021;19:8.
- 14 Spiers GF, Liddle J, Kunonga TP, *et al.* What are the consequences of caring for older people and what interventions are effective for supporting unpaid carers? A rapid review of systematic reviews. *BMJ Open* 2021;11:e046187.
- 15 Krumholz HM. Post-hospital syndrome — an acquired, transient condition of generalized risk. *N Engl J Med Overseas Ed* 2013;368:100–2.
- 16 Scott J, Abaraogu UO, Ellis G, *et al.* A systematic review of the physical activity levels of acutely ill older adults in hospital at home settings: an under-researched field. *Eur Geriatr Med* 2021;12:227–38.
- 17 Coster S, Norman I. Cochrane reviews of educational and self-management interventions to guide nursing practice: a review. *Int J Nurs Stud* 2009;46:508–28.
- 18 Trappenburg J, Jonkman N, Jaarsma T, *et al.* Self-management: one size does not fit all. *Patient Educ Couns* 2013;92:134–7.
- 19 Leff B, DeCherrie LV, Montalto M. A research agenda for hospital at home. *J Am Geriatr Soc* 2022;70:1060–9.