


# BMJ Open Quality Measuring discharge quality based on elderly patients' experiences with discharge conversation: a cross-sectional study

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## ABSTRACT

**Background** Discharge conversation is an essential part of preparing patients for the period after hospitalisation. Successful communication during such conversations is associated with improved health outcomes for patients. **Objective** To investigate the association between discharge conversation and discharge quality assessed by measuring elderly patients' experiences.

**Methods** In this cross-sectional study, we surveyed all patients ≥65 years who had been discharged from two medical units in two hospitals in Western Norway 30 days prior. We measured patient experiences using two previously validated instruments: The Discharge Care Experiences Survey Modified (DICARES-M) and The Nordic Patient Experiences Questionnaire (NORPEQ). We examined differences in characteristics between patients who reported having a discharge conversation with those who did not, and used regression analyses to examine the associations of the DICARES-M and NORPEQ with the usefulness of discharge conversation.

**Results** Of the 1418 invited patients, 487 (34%) returned the survey. Their mean age was 78.5 years (SD=8.3) and 52% were women. The total sample mean scores for the DICARES-M and NORPEQ were 3.9 (SD=0.7, range: 1.5–5.0) and 4.0 (SD=0.7, range: 2.2–5.0), respectively. Higher DICARES-M and NORPEQ scores were found for patients who reported having a discharge conversation (74%) compared with those who did not (15%), or were unsure (11%) whether they had a conversation ( $p<0.001$ ). Patients who considered the conversation more useful had significantly higher scores on both the DICARES-M and NORPEQ ( $p<0.001$ ).

**Conclusions** Reported discharge conversation at the hospital was correlated with positive patient experiences measurements indicating the increased quality of hospital discharge care. The reported usefulness of the conversation had a significant association with discharge care quality.

## BACKGROUND

Effective communication between health professionals and patients involves the exchange of health information as well as empathic care that is an exceedingly important aspect of elderly patients' treatment in the hospital.<sup>1</sup> Indeed, patients' perception

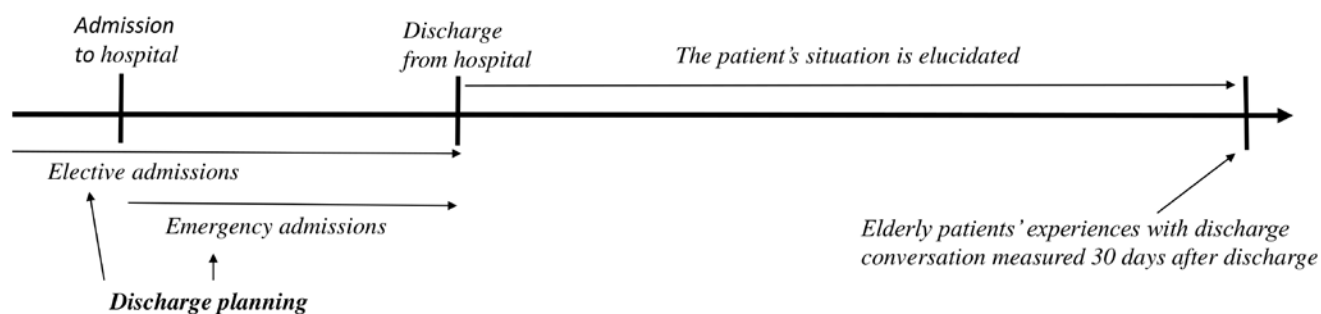
of the care they received in hospital is significantly and positively influenced by how they experienced the quality of the interaction with health professionals<sup>2</sup> and has a significant impact on patient adherence to treatment.<sup>3</sup> Further, responsiveness to patient needs is one of the key dimensions of health-care quality.<sup>4</sup>

Health professionals have a critical role in preparing patients for the vulnerable period after hospital discharge (ie, the point at which inpatient hospital care ends, with ongoing care transferred to other primary, community or domestic environments),<sup>5</sup> as the patients will not have direct access to important health-related information when leaving the hospital. Particularly, the lack of discharge-related communication is problematic for elderly patients with complex care needs, who are at increased risk of adverse events in the acute period after hospitalisation.<sup>6,7</sup> Depending on the patients' care needs, discharge planning in Norwegian medical hospital units covers a range of activities including discharge conversation (figure 1).<sup>8</sup> Nevertheless, elderly patients quite often do not have a discharge conversation in the hospital.<sup>9,10</sup>

The 30-day emergency readmission rate is a commonly used quality indicator in hospitals,<sup>11</sup> however, this indicator may be influenced by comorbidity and other causes of hospitalisation.<sup>12</sup> As an additional approach, patient experiences is recognised as a key element to manage quality in healthcare.<sup>13</sup> Patient experiences may be defined as 'the sum of all interactions, shaped by an organisation's culture, that influence patient perceptions, across the continuum of care'.<sup>14</sup> Instruments reflecting patient experiences have been developed to measure and monitor quality in healthcare.<sup>15</sup>

## Discharge planning in elderly patients

- \* Medication reconciliation
  - \* Assessment of risk of malnutrition, falls and ulcers
  - \* Follow up inpatients/outpatient appointments
  - \* Written patient information letter
  - \* Discharge letter to the patient's doctor (GP)
  - \* Discharge conversation with the patient and/or next of kin
- \* Coordination with municipality health services when required
  - \* Follow up plan when required
  - \* Assure necessary medical equipment's at home
  - \* Assure necessary aid equipment's at home
  - \* Transportation from hospital to home or institution



**Figure 1** Tasks and activities included in discharge planning in elderly patients in Norwegian medical Hospital units. GP, general practitioner.

A number of studies have examined the factors that constitute sufficient communication from patients' perspectives, often by investigating the interactions between physicians and patients.<sup>3 16</sup> Evidence-based interventions aiming to improve physicians' and nurses' communication with patients have been conducted at the participating hospitals in recent years.<sup>17 18</sup> Some of these interventions have emphasised the discharge conversation. Several studies have investigated issues regarding discharge communication,<sup>19–22</sup> however, we have not been able to identify studies investigating the association between discharge conversation in the hospital, and its possible impact on discharge quality by use of validated indicators. The aim of the study was to investigate the association between discharge conversation and discharge quality as measured by elderly patient experiences.

### METHODS

#### Design and setting

We used a cross-sectional study design to evaluate patient experiences of discharge conversation in hospital by using two questionnaires: a modified version of the Discharge Care Experiences Survey (DICARES-M)<sup>23</sup> and the Nordic Patient Experiences Questionnaire (NORPEQ), which is frequently used as a quality indicator in Norwegian hospitals.<sup>24 25</sup>

We invited all patients aged  $\geq 65$  years with a hospital stay of at least 24 hours because those with shorter stays are patients scheduled for specific procedures in the daytime. The present study presents a subset of data collected as a part of a larger study completed at two hospitals in Bergen, Western Norway. These hospitals

serve approximately 1 150 000 inhabitants. The patients were recruited from a 22-bed gastrointestinal unit from the larger hospital (a referral tertiary teaching hospital) and from a 32-bed general medical unit at the smaller hospital (a non-commercial private community hospital).

#### Data collection and questionnaires

The survey questionnaire, which contained the two scales and a consent form, was sent via postal mail 1 month after patients were discharged from the hospital. All these patients received treatment between June 2015 and March 2016. Non-responders were sent a reminder after 3 weeks.

To be eligible for participation, patients had to return a signed consent form with the questionnaire and respond to the question: *Did you have a discharge conversation at the hospital?*, with five response alternatives: *Yes, with a doctor*; *Yes, with a nurse*; *Yes, with a nurse and a doctor*; *No, I did not have a discharge conversation*, and *Unsure*. Additionally, the patients had to complete at least 50% of the items on DICARES-M and NORPEQ. This cutoff point is in line with an earlier study of NORPEQ.<sup>20</sup>

As quality in discharge cannot be measured by one singular question, we applied a newly developed instrument, DICARES-M, with a sum score reflecting quality.<sup>8 23</sup> The original first version of DICARES-M<sup>8</sup> that contained 10 items was evaluated by healthcare professionals and adjusted by adding one item: *I received information about the effects and side effects of my medication*. We included this item because medication errors are one of the most commonly reported adverse events after hospitalisation.<sup>26</sup> The modified DICARES-M version<sup>23</sup> contains 11 items in

three factors: *coping after discharge* (4 items), *participation in discharge planning* (4 items) and *adherence to treatment* (3 items). Negative DICARES-M statements (seven items), such as *I have experienced problems in understanding the instructions I received when I was discharged from the hospital*, were inverted to a positive scale. The NORPEQ consists of six validated items covering essential aspects of hospital care; understanding doctors professional skills of nurses/doctors, staff interested in the problem, nursing care, information on tests and two additional items measuring global satisfaction and perceptions of incorrect treatment.<sup>24</sup> The DICARES-M and NORPEQ items were all scored on a 5-point Likert-type scale, as follows: 1=*not at all*, 2=*to a little extent*, 3=*to some extent*, 4=*to a large extent* and 5=*to a very large extent*.<sup>27</sup> Higher scores indicate more

positive experiences. The equivalent response scale was used for the additional question: *To what extent did you find the discharge conversation useful?* We categorised the responses into two groups, 'low usefulness' including 1=*not at all*, 2=*to a little extent* and 3=*to some extent* in one group, and 'high usefulness' 4=*to a large extent* and 5=*to a very large extent* in the other group. Data were plotted twice by the same research assistant and subsequently checked for errors by two of the researchers. An anonymous data file is available (online supplementary file).

The survey questionnaire also evaluated patients' housing status and educational level. Other patient characteristics were obtained from the hospitals' patient administrative system, including age, sex, length of hospital stay and comorbidity. In order to compare the

**Table 1** Characteristics of the patients according to whether they had a discharge conversation at the Norwegian hospitals in Bergen (2015–2016).

Characteristics, categorical	N	Reported to have a discharge conversation			P value*
		Yes N (%)	No N (%)	Unsure N (%)	
All patients	487	360 (74)	73 (15)	54 (11)	
Age groups (y)					0.003
65–79	265	212 (80)	33 (13)	20 (7)	
80–99	222	148 (67)	40 (18)	34 (15)	
Sex					0.209
Female	254	185 (73)	35 (14)	34 (13)	
Male	233	175 (75)	38 (16)	20 (9)	
Housing status†					0.120
Single household	214	153 (71)	40 (19)	21 (10)	
Shared household	264	200 (76)	32 (12)	32 (12)	
Education‡					0.530
Compulsory school	188	132 (70)	35 (19)	21 (11)	
Upper secondary school	165	125 (76)	20 (12)	20 (12)	
Higher education/ University	104	78 (75)	16 (15)	10 (10)	
Hospital					0.023
Hospital 1§	204	145 (41)	40 (55)	37 (68)	
Hospital 2¶	283	213 (59)	33 (45)	17 (32)	
Emergency readmission**					0.824
No	368	274 (76)	55 (75)	39 (72)	
Yes	119	86 (24)	18 (25)	15 (28)	
Characteristics, continuous	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	P value††
Age (y)	78.5 (8.3)	77.8 (8.3)	80.0 (7.5)	81 (8.6)	0.130
Charlson Comorbidity Index	0.9 (1.4)	0.9 (1.4)	1.0 (1.3)	0.9 (1.5)	0.748
Length of hospital stay (d)	3.6 (3.3)	3.6 (3.3)	3.8 (3.7)	3.4 (2.9)	0.768

\* $\chi^2$  test.

†Data on household were missing for nine patients.

‡Data on education were missing for 30 patients.

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¶General medical unit, Haralds plass Deaconess Hospital, Bergen Norway.

\*\*Emergency readmission within 30 days after hospital discharge.

††One-way analysis of variance.

**Table 2** Mean scores on the discharge care experiences survey (modified) (n=487)

Factors with items	Mean (SD)
<b>Coping after discharge</b>	
1.I have felt stressed*	4.07 (1.07)
2.I have felt blue*†	3.84 (1.12)
3.I have experienced problems in performing daily activities (eg, personal hygiene, getting dressed, cooking)a	3.91 (1.33)
4.I have experienced problems in getting sufficient nutrition*	4.07 (1.21)
<b>Participation in discharge planning</b>	
5.In connection with being discharged, I had an opportunity to notify hospital personnel about what I thought was important	3.35 (1.26)
6.When I was discharged from the hospital, I understood thoroughly the purpose of taking my medication	3.94 (1.30)
7.I got information about effects and side effects of my medications‡	2.59 (1.44)
8.When I was discharged from the hospital, I had a good understanding of my responsibility in terms of looking after my health	3.58 (1.10)
<b>Adherence to treatment</b>	
9.I have experienced problems in understanding the instructions I received when I was discharged from hospital*	4.43 (0.98)
10.I have experienced problems in following the instructions I received when discharged from the hospital*	4.45 (0.96)
11.I felt I was discharged too early*	4.20 (1.20)
Total sample mean score	3.90 (0.72)

\*Negative statements were inverted to a positive scale.

†Item was formulated as *I have felt depressed* in the original version of the DICARES-M.

‡Item not included in the original version of DICARES-M. DISCARES-M, Discharge Care Experiences Survey Modified.

patient characteristics for the responders versus all the invited, we obtained data in anonymous format at the group level from the patient administrative system. For those who responded to the survey with a written consent, the patient characteristics were collected on an individual level. We evaluated emergency readmission by checking the patient administrative system and asking patients directly, to account for the fact that patients might have been readmitted to other hospitals. Comorbidity was evaluated using the Charlson Comorbidity Index<sup>28</sup> based on the International Classification of Diseases, Tenth Revision codes.<sup>29</sup>

### Statistical analysis

Missing data for individual items on the DICARES-M (4.8%) and NORPEQ (0.8%) were imputed using the mean of the responses of the other items for that person

(within-person imputation) to optimise statistical power and retain the same number of individuals for all analyses.<sup>30</sup> To examine differences in the characteristics between patients who reported to have a discharge conversation with those who did not, we used the  $\chi^2$  test for categorical data and one-way analysis of variance (ANOVA) for continuous data. Next, we examined the associations of the DICARES-M (both total and factor scores) and NORPEQ, with the usefulness of discharge conversation. We included the usefulness of discharge conversation with nurses or physicians as a dichotomous independent variable and the DICARES-M and NORPEQ scores as continuous dependent variables in linear regression models. The regression analyses were performed using crude and adjusted models, with the latter being adjusted for sex, housing status, education, hospital, age, and comorbidity. To avoid listwise deletion, missing data for the covariates were replaced by using the joint modelling algorithm and the multivariate normal distribution. The imputation model included all the above-mentioned covariates, usefulness of discharge conversation and the outcome variables. Two hundred imputed datasets were created. Pooled estimates were obtained by using Rubin's combination rules,<sup>31</sup> adjusted for the variability between imputation sets. All the statistical analyses were performed by SPSS Statistics V.23.0 and Stata SE V.15.

### Patient and public involvement

Patient representatives took part in the planning of the study, and in the study's reference group which had two meetings to discuss and evaluate the study.

### Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki<sup>32</sup> and was approved by the Western Norway Regional Committee for Medical and Health Research Ethics (Ref.: 2015/329) before the study began. The study was further approved by the hospitals' managers. Patients who did not return a signed consent form with the questionnaire were excluded from the study.

## RESULTS

Of the 1418 invited patients, 487 (34%) returned the survey (table 1). The mean age of the participants was 78.5 years (SD=8.3) and 52% were women compared with 79.9 years (SD=8.6) and 55% for all invited. The mean length of hospital stay was 3.6 days. Overall, the patients had a significant disease burden (Charlson Comorbidity Index=0.9 for the responders and 1.10 for all the invited), and 24% were emergency readmitted within 30 days after their hospitalisation. A total of 360 patients (74 %) reported having a discharge conversation. There were differences in patients' responses to the discharge conversation item according to age groups and hospitals (table 1).

The response rate for the 11 DICARES-M items varied from 87% to 100% (table 2), whereas approximately 100% responded to each of the six NORPEQ items (table 3).



**Table 3** Mean scores of the Nordic patient experiences questionnaire\* (n=487)

Items	Mean (SD)
1. Were the doctors understandable?	4.06 (0.83)
2. Did you have confidence in the doctors' professional skills?	4.19 (0.69)
3. Did you have confidence in the nurses' professional skills?	4.17 (0.70)
4. Did the nurses take care of you?	4.13 (0.83)
5. Were the health personnel interested in your problem(s)?	3.85 (0.95)
6. Did you receive sufficient information about tests and examinations?	3.80 (0.98)
Total sample mean score	4.03 (0.66)
Additional questions:	
7. Overall, was the treatment and care you received in the hospital satisfactory?†	NA
8. Was there a time you thought a medical mistake was made in your treatment and care?†	NA

\*Six validated questions from the original eight-item questionnaire were included in the analyses. Questions 7 and 8 are not validated.

†This question is not validated.

NA, not applicable.

The overall mean scores for the DICARES-M and NORPEQ were 3.9 (SD=0.7; range: 1.5–5.0) and 4.0 (SD=0.7, range: 2.2–5.0), respectively. The lowest mean score of the three DICARES-M factors was found for *participation in the discharge planning* (mean=3.4, SD=0.9). Patients who reported they had a discharge conversation (n=360) scored significantly higher to DICARES-M and NORPEQ than patients who reported they did not have a discharge conversation (n=73), and those who reported to be unsure whether they had such a conversation (n=54) (p<0.001) (table 4). In the regression analysis, we found that patients who reported the discharge conversation to be of 'high usefulness' had significantly higher scores on the DICARES-M (and its three factors) and NORPEQ than those who reported 'low usefulness' (table 5). No association was found between the usefulness of discharge conversation and emergency readmission (p=0.160).

## DISCUSSION

We found that 74% of the patients reported having a discharge conversation and that individuals with a conversation prior to discharge had higher scores on DICARES-M and NORPEQ when compared with those who did not report having such a conversation or to

those who were unsure whether they had one. In addition, individuals who considered the conversation more useful tended to have higher DICARES-M and NORPEQ scores (table 5).

Altogether, having a discharge conversation appeared to be associated with more positive experiences. Seventy-four per cent of the patients reported they had a discharge conversation. This conflicts with a previous Norwegian study from 2012, conducted by Foss *et al.*<sup>10</sup> wherein only 10% of the patients (mean age=86 years) reported they had a discharge conversation. In the participating hospitals, healthcare professionals aim to hold discharge conversations with all patients, which might be one reason for the large difference in results between our study and that of Foss *et al.* However, our study has similarities with the one of Foss *et al.* with respect to that the group of patients ≥80 years were less likely to report having a discharge conversation. This might be explained with ageism (ie, discrimination against people on the basis of their age), which according to the WHO is an everyday challenge for older people,<sup>33</sup> even among health professionals.<sup>34</sup> Other possible explanations could be patients' health conditions, the time of discharge or healthcare professionals' time constraints.<sup>35</sup>

**Table 4** Differences in quality indicator scores on whether or not a discharge conversation was reported (n=487)

	Reported to have a discharge conversation†			P value*
	Yes (%)	No (%)	Unsure (%)	
	n=360 (74)	n=73 (15)	n=54 (11)	
All patients	Mean (SD)	Mean (SD)	Mean (SD)	
DICARES-M	4.02 (0.67)	3.62 (0.79)	3.60 (0.78)	<0.001
NORPEQ	4.14 (0.62)	3.63 (0.64)	3.87 (0.69)	<0.001

\*One-way analysis of variance.

†Question: *Did you have a discharge conversation at the hospital?*, with response alternatives Yes, with a doctor, Yes, with a nurse, Yes, with a nurse and a doctor, No, I did not have a discharge conversation, and "Unsure".

DICARES-M, Discharge Care Experiences Survey Modified; NORPEQ, Nordic Patient Experiences Questionnaire.

**Table 5** Differences in mean total and factor scores among responders according to reported usefulness of discharge conversation

	Reported usefulness of discharge conversation				Estimated group differences‡			
	Low* (n=140)		High† (n=220)		Unadjusted† (95% CI)	P value	Adjusted§ (95% CI)	P value
	Mean	SD	Mean	SD				
<b>DICARES-M</b>								
Overall (11 items)	3.74	0.71	4.21	0.57	-0.47 (-0.60 to 0.33)	<0.001	-0.45 (-0.58 to 0.31)	<0.001
CAD (4 items)	3.84	0.95	4.24	0.85	-0.40 (-0.58 to 0.21)	<0.001	-0.37 (-0.56 to 0.18)	<0.001
ATT (3 items)	4.13	0.86	4.58	0.71	-0.45 (-0.61 to 0.28)	<0.001	-0.45 (-0.62 to 0.28)	<0.001
PIDP (4 items)	3.24	0.90	3.76	0.76	-0.53 (-0.70 to 0.36)	<0.001	-0.49 (-0.67 to 0.32)	<0.001
<b>NORPEQ</b>								
Overall (6 items)	3.91	0.65	4.29	0.55	-0.37 (-0.50 to 0.25)	<0.001	-0.36 (-0.49 to 0.23)	<0.001

\*Response alternatives 1. *Not at all*, 2. *To a little extent*, or 3. *To some extent* for the question: *To what extent did you find the discharge conversation useful?*

†Response alternatives 4. *To a large extent* or 5. *To a very large extent* for question: *To what extent did you find the discharge conversation useful?*

‡By linear regression model.

§Adjusted for sex, housing status, education, hospital, age, and comorbidity; missing data for housing status (n=9) and education (n=25) were imputed using a multiple imputation technique.

ATT, adherence to treatment; CAD, coping after discharge; DICARES-M, Discharge Care Experiences Survey Modified; NORPEQ, Nordic Patient Experiences Questionnaire; PIDP, participation in discharge planning.

The total mean scores for the DICARES-M and NORPEQ were relatively high, indicating that patients had predominantly positive experiences (tables 2 and 3). Furthermore, when patients reported the discharge conversation to be useful, they tended to score significantly higher on the DICARES-M factor of *adherence to treatment*, indicating that they had far fewer problems in understanding and following treatment instructions compared with patients who reported the conversation to be less useful (table 5). This finding is similar to results in an extensive meta-analysis performed by Zolinerek and DiMatteo.<sup>3</sup> They identified an increased risk (19%) of non-adherence to treatment among patients whose doctors communicated poorly compared with patients whose doctors communicated well.

The *participation in the discharge planning* factor of the DICARES-M had the lowest scores (table 4), which is consistent with findings of a previously published study of the DICARES-M,<sup>23</sup> and those of other studies of elderly patients' discharge experiences.<sup>9 36 37</sup> The lack of routines or procedures designed to make sure that patients' opinions are heard might be a reason for this result.<sup>35</sup> To determine whether elderly patients desire to be involved in their own healthcare, professionals must actively look for that desire.<sup>36</sup> Potentially, patients in the current study participated to a greater extent than is shown in the results, as health professionals might have involved patients in discharge-related issues when performing other tasks. However, a study of cultural factors that hampered or assisted person-centred care in an acute care setting revealed that nurses organised their work in reaction to the importance of the tasks and that the patients were not often involved in planning their own care.<sup>38</sup> Support from health professionals that affirms patients'

ability to participate might encourage elderly patients to actually participate.<sup>9</sup> Even minor changes in physicians' behaviour can influence patients' ability to participate actively in decision-making and problem-solving.<sup>39</sup> In addition, suitable lighting and a calm environment can have a positive impact on communication with vulnerable patients, so health professionals are urged to be aware of the physical environment.<sup>40</sup> To improve these aspects of care, it is valuable to continually monitor care quality through patient experience surveys.

We observed higher mean scores on both the DICARES-M and NORPEQ in patients who reported the discharge conversation to be useful (table 5). Patients aged ≥80 years are prone to hearing problems, and such impairments might influence the effectiveness of discharge conversations.<sup>36</sup> We do not have other data than high age explaining this finding. However, lower processing of information might also hamper communication, and influence on how helpful patients find the discharge conversation.<sup>41</sup> Hvalvik and Dale<sup>9</sup> found that elderly adults were typically humble and felt grateful for the care system of which they were a part. They often accepted care that was conducted or arranged without their consent. The factors discussed above might explain the relatively high DICARES-M and NORPEQ scores among patients who did not report having a discharge conversation or who felt such conversations to be of little or no help.

Similar to a previous study on the DICARES-M,<sup>23</sup> 24% of the patients in the current study experienced emergency readmission within 30 days after their hospitalisation (table 1). This is nearly double the percentage among 700 000 patients (mean age=78 years) in a large-scale study of hospital readmissions in Canada.<sup>42</sup> However, it is

only four percentage points higher than the 20% found among 11 million beneficiaries of the Medicare Fee-For-Service model (a hospital insurance programme) in the USA.<sup>43</sup> The relatively high emergency readmission rate in the current study might be attributed to differences in how readmission is defined between studies,<sup>44</sup> and the fact that admissions to the hospital in Norway are free of charge.<sup>45</sup> Keller *et al*<sup>46</sup> found that negative experiences appear to influence scores on most communication and information domains. One might assume that emergency readmission influences patients' experience negatively. However, we observed no association between the usefulness of discharge conversation and emergency readmission. This finding corresponds with those of a study by Felix *et al*,<sup>47</sup> wherein two out of three patients who reported satisfying discharge experiences had emergency readmissions. The emergency readmission rate might be influenced by many other factors than the quality of care,<sup>12</sup> and we assume that we have no reason to believe that there are other explanations for emergency readmission than medical conditions and the need for treatment.

The NORPEQ measures overall care quality and was included in the current study due to it has been used as a quality indicator for some years in Norwegian hospitals.<sup>25</sup> In a previous version of DICARES-M, the instrument overlaps with NORPEQ to some degree and shows a moderate correlation.<sup>8</sup> The DICARES-M provides greater nuance because of its three factors and is generally consistent with the NORPEQ. Our findings therefore might solidify the DICARES-M as an appropriate instrument for monitoring discharge quality, which might make it a useful means of examining the effects of interventions aiming to improve the quality of discharge among elderly patients.

### Strengths and limitations

A limitation of this study is the low response rate. Non-response is a common challenge in research on patient experiences.<sup>24 48</sup> Possible reasons for the low response rate may relate to sex comorbidity, and age. For example, very old people (>80 years old) are less likely to respond to postal surveys.<sup>49</sup> A low response rate may bias study results because those who respond and those who do not respond to the survey may differ in some systematic way.<sup>50</sup> However, we observed no important differences in the distribution of age, sex, or Charlson Comorbidity Index between the invited patients and the responders. A personal invitation to patients before they left the hospital might have increased the response rate.<sup>8</sup> Furthermore, telephone interviews or holding one-to-one interviews, where trained researchers completed the questionnaire forms could have increased the response rate, particularly among the oldest and most vulnerable patients.<sup>51</sup> However, this was not possible in the current study due to these approaches require relatively considerable consumption of resources. Finally, cost efficiency and acceptability are important aspects of the utility of an instrument,<sup>15</sup> and we choose postal mail which is commonly used as a distribution method in our setting.

Another limitation is that we did not have available data from the patients' medical records on whether or not a discharge conversation actually was completed in the hospital. The results are based on patients' subjective perceptions, and there is a risk of recall bias with respect to that the patients may have forgotten whether or not a discharge conversation took place, and the content of the conversation. Further, there is a possibility that patients could have been readmitted after the index hospitalisation on which they were asked about. The patients' answers could therefore have reflected their readmission rather than the index hospitalisation or have mixed up their experiences among multiple hospital stays. However, test-retest results in a previous version of the DICARES-M showed reasonable results.<sup>8</sup>

This cross-sectional study included data from two hospitals, and the collection and adjustment of comprehensive information on respondents' characteristics, including age, comorbidity, length of stay education, housing status and readmission strengthen the validity of the results.

Another strength is that the survey comprised two brief validated questionnaires. The use of extensive questionnaires can exhaust participants, particularly when the target population is older adults.<sup>52</sup> Finally, the amount of missing data in DICARES-M and NORPEQ, which is often a challenge in clinical studies of elderly patients, was within the acceptable range of missing data.<sup>53</sup>

### CONCLUSIONS

In conclusion, reported discharge conversation at the hospital was correlated with positive patient experience measurements indicating the increased quality of hospital discharge care. The reported usefulness of the conversation had a significant association with discharge care quality.

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