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Patients prefer clinical handover at the bedside; nurses do not: Evidence from a discrete choice experiment

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ABSTRACT

Background: Shift-to-shift bedside handover is advocated as a patient-centred approach, yet its enactment is challenging.
Objectives: To describe and compare the preferences of both patients and nurses in the implementation of bedside handover in a Swedish University Hospital.
Design: A discrete choice experiment (DCE) survey.
Settings: University setting, four medical wards in two hospitals.
Participants: Adult medical patients ($n = 218$) and registered nurses ($n = 101$)
Methods: The survey was administered by an electronic tablet-assisted face-to-face survey. Respondents made repeated choices between two hypothetical bedside handover alternatives and a third alternative of 'handover away from the bedside'. Handover alternatives were described according to six attributes: invitation to participate, number of nurses present at the handover, family member, carer or trusted friend (of the patient) allowed to be present, level of (patient) involvement, what information related to your (patient) care is discussed. Choice data were analyzed using a mixed logit model.
Results: A total of 1308 (patients) and 909 (nurses) choice observations were included in the preference models. Patients showed a strong preference for handover at the bedside compared to nurses. Nurses generally preferred handover away from the bedside. Patients perceived their level of involvement in handover as highly important, being able to speak, hear what was said being the most important characteristic, closely followed by being invited to participate and asked questions as well as being heard. Nurses considered patients being invited to participate most important, followed by level of involvement. Different options for handing over sensitive information were not perceived of importance by patients or nurses. There was substantial variation at the individual level across both patients and nurses for where and how handover is delivered.
Conclusions: In this study, patients strongly preferred handover at the bedside, while the nurses considered patients to be invited to participate to be the most important preference but generally preferred handover to take place away from the bedside, all else equal. When implementing bedside handover

Abbreviations: DCE, Discrete Choice Experiment.

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in a Swedish context this must be considered, although participation is a prerequisite for bedside handover. Differences between patients and nurses' preferences could jeopardize future introduction of bedside handover in Swedish health care, and might explain why bedside handover is still not very common in hospital wards.

What is already known about the topic?

- Nurses perception of confidentiality may jeopardize bedside handover.
- Bedside handover could increase patient participation and safety.
- The knowledge about the difference in preferences of both patients and nurses concerning the bedside handover is still limited.
- More knowledge about the preferences of patients and nurses could help to understand why bedside handovers are still not widely used in nursing practice.

What this paper adds

- Patient participation is crucial for bedside handover, and a patient-centered approach to care.
- Participating patients wants to be active partners in the team, having their voices heard.
- Nurses and patients have different views on where and how to deliver handover.
- How or were sensitive information is presented (quietly at the bedside, verbally away from the bedside or in written form) is of minimal importance for patients as well as nurses.

1. Introduction

In nursing, shift-to-shift handover occurs two or three times each day on every ward in most hospitals. In the US in 2005 an average in-patient required 24 handovers during a hospital stay (Riesenberg et al., 2009). There has been international recognition that handovers can be inaccurate and incomplete, resulting in increased risk for patient safety (Anderson et al., 2015; Bressan et al., 2019; Marmor and Li, 2017; Sand-Jecklin and Sherman, 2014). Miscommunication of patient care is a major contributing factor to patient harm in hospitals (i.e. errors and adverse events) (de Vries et al., 2008; Socialstyrelsen, 2008). While there are various ways the handover process is performed, it often occurs away from the patient and may or may not be face-to-face. There are several reasons why bedside handover is not used in practice, Tobiano et al. (2018) mention the difficulties about patient participation, Malfait et al. (2019a) point out time-use and other barriers may be the organization of the nursing ward (Anderson et al., 2015).

The traditional handover can result in a communication failure among staff members, risking patient safety (Anderson and Mangino, 2006). But, when bedside handover occurs, members of both the outgoing and incoming teams are present, and the patient is also involved (Chaboyer et al., 2010). A number of reviews indicate bedside handover as an important way to enhance the delivery of important information from patients to nurses and vice versa, decreasing the number of miscommunications in care (Anderson et al., 2015; Mardis et al., 2016; Tobiano et al., 2018). Thus, how nurses perform clinical handover has become a target to improve communication and patient safety. Yet, little is known about patients' and nurses' preference for bedside handover, the focus of this research.

Bedside handover has shown possibilities to enhance both patient and nursing satisfaction, used as an effective communication tool (Vines et al., 2014). An implementation of bedside reports increased patient satisfaction and is associated with positive experiences for both nurses and patients, when patients felt more included and informed about their care (Anderson and Mangino, 2006; Vines et al., 2014). Conducting nursing handover at the bedside with patient participation has emerged as a strategy to improve both the quality of the handover and the patient centeredness of care (Bruton et al., 2016). A body of research shows that nurses are more concerned than patients about confidentiality issues (Anderson et al., 2015; Malfait et al., 2019b; Oxelmark et al., 2017; Ringdal et al., 2017). Additionally, privacy laws in some countries may very well contribute to nurses concerns with confidentiality. Patients appreciated bedside handover as an opportunity to correct any inaccuracies in the information being transferred and most patients appreciated handover as an inclusive approach by way of nurse-patient interaction (McMurray et al., 2011). Bedside handover could also improve team collaboration and increase patient and nurse satisfaction (Mardis et al., 2016).

Clinical handover is an essential source of patient health information for nurses and patients, and to engage the patient in this process could be challenging (Johnson and Cowin, 2013). Handovers are important nursing interventions in clinical nursing in order to provide all crucial information during this procedure. By improving handover practices, patient safety is enhanced as well (Athanasakis, 2013). Despite this, patients may feel excluded from information and decision making concerning their conditions (Radtke, 2013). Handover may therefore be a possible tool to enhance patient participation and patient safety, but nurses and patients may see things differently.

This study aimed to identify differences and similarities in preferences of both patients and nurses concerning bedside handover in a Swedish context. This study extends previous research, which has investigated patient and nurse preferences for handover at the bedside in Australia (Spinks et al., 2015; Whitty et al., 2017).

2. Methods

2.1. Research design

A discrete choice experiment (DCE) was undertaken to investigate preferences for the implementation of bedside handover. The DCE methodology provides a robust understanding of preferences for delivery of healthcare services and interventions, and is complimentary to qualitative interviews. In a DCE, respondents are presented with a survey which contains a series of choices between two or more alternatives, and are asked to select the alternative they prefer in each choice set. Each alternative is defined according to a combination of attributes and levels. The levels of the attributes are varied systematically across the alternatives. The relative importance of the attribute levels in driving handover choice and the trade-offs individuals make when choosing one alternative over another are estimated through regression analysis of the choice data.

2.2. Setting and sample

The study was performed in two public hospitals, both part of the same University Hospital setting, in Sweden. The two hospitals were geographically diverse, but located in the same city. They admit patients with similar kind of medical diagnoses; however, the catchment areas vary in terms of socio-economic groups. Altogether, the University Hospital employs about 5300 nurses and approximately 80 Registered Nurses were employed on the wards studied. Patients who were 18 years of age or older, with chronic medical conditions with at least one co-morbidity, and who had a hospital length of stay of at least three days at the wards were invited to participate. If their condition did not allow them or if they had cognitive impairment, they were excluded. Registered nurses working as bedside nurses or team leaders at the designated wards were invited to participate. Nurses with temporary employment were excluded. Bedside handover had not been implemented on the participating wards.

We used a commonly applied 'rule of thumb' to estimate the sample size required for the DCE (Marshall et al., 2010; Spinks et al., 2015). This guidance indicated that we would require a minimum sample size of 125 patients (responding to 6 choice sets each) and 83 nurses (responding to 9 choice sets each) to give precise estimates for the main effect of each attribute level on handover choice given the number of attributes and levels in our DCE, at the conventional 5% significance level. We targeted a more generous sample of 200 patients and 100 nurses to complete the DCE survey. However, investigating the impact of sociodemographic characteristics on choice would require a larger sample and there is no guidance available on which to base an estimate of the minimum sample size required to do this. Therefore, the analyses investigating the extent to which patient characteristics explain any difference in handover preferences undertaken in this study should be considered to be exploratory.

2.3. DCE survey

Details on the survey development have been published previously (Spinks et al., 2015; Whitty et al., 2017). Briefly, the attributes and levels for the DCE were developed based on extensive qualitative interviews with patients and nurses in Australia and then combined using a D-efficient statistical design to optimize the precision of the preference estimates (Spinks et al., 2015; Tobiano et al., 2015a, 2015b; Whitty et al., 2017). The relevance of the attributes and levels to patients and nurses in Sweden was also confirmed in two Swedish interview studies (Oxelmark et al., 2017; Ringdal et al., 2017).

There was a total of 18 different choice sets, which were divided into three survey versions for patients and two survey versions for nurses. Thus, each respondent was asked to make six (patients) or nine (nurses) choices between two different bedside handover alternatives, assumed to take place between daytime and evening nursing shifts. For both groups, each choice set also contained a third alternative of "I would prefer handover away from my [the patient] bedside", allowing respondents to "opt out" of bedside handover, if they preferred. The different bedside handover alternatives were described by six attributes, each with between two and three levels (Table 1) (Spinks et al., 2015; Whitty et al., 2017). An example from one of the scenarios from the patient survey is presented in Fig. 1.

The survey also collected basic information on sociodemographic characteristics, clinical status (patients) and work experience (nurses). The survey was converted from English to Swedish, then back-translated by a translator unfamiliar with the original wording and discussed within the research team. The translated questionnaire was then pilot tested with three nurses and three patients with good results.

2.4. Data collection

Data were collected during a time period of five months (December 2015 to April 2016). The DCE was administered by research assistants specifically trained by the research team. We used an interviewer administered electronic tablet-assisted face-to-face survey. Potential participants (both patients and nurses) were approached at the wards and received an information summary of the aim of the study. All patients and nurses who agreed to participate gave written informed consent. Patient demographic and clinical data such as age, gender, education and medical condition was also collected. Nurse demographic data such as age, gender, experience and job classification were collected. Patient surveys took place during their hospital stay at a time and location mutually convenient and prior to hospital discharge. Nurse surveys took place at a time mutually convenient to the nurses' workload at the ward and research team. The survey took 30 min or less to complete for both patients and nurses.

2.5. Ethical approval

The study was approved by the Ethical Review Board of the University of Gothenburg (Application No 693-13) and conforms to the declaration of Helsinki, World Medical Association (WMA, 2013).

2.6. Data analysis

The choice data were analyzed in NLogit statistical software (version 6, Econometric Software Inc.). Patient and nurse data were separately analyzed, using a multinomial logit (MNL) and latent class (LC) models for preliminary analyses and then a mixed logit model (MXL) for the final analysis. The preferred model was selected based on model fit (minimizing the Akaike Information Criterion, AIC).

2.6.1. Model specification

The analytic approach was based on random utility theory and Lancaster's Theory of Value, (Lancaster, 1966; McFadden, 1974; Thurstone, 1994) which together assume that each individual respondent attaches a latent or unobserved "utility" for each choice alternative (Louviere, 2010), and that this utility is a function of the utility associated with unique 'attributes' of that alternative (Lancaster, 1966). The respondent is assumed to choose the alternative in each choice set which maximizes his or her own utility or satisfaction with the handover.

The utility function for the handover was specified as a linear additive function of the main effects for each attribute level, as shown in the following equation:

$$V(i,j) = \beta_{0j}Constant + \beta_{1j}Invite + \beta_{2j}Nurses + \beta_{3j}Family + \beta_{4j}Involvement1 + \beta_{5j}Involvement2 + \beta_{6j}Content + \beta_{7j}Confidentiality1 + \beta_{8j}Confidentiality2 \quad (1)$$

In Eq. (1), V(i,j) is the systematic (observed) utility for individual i associated with choice j (j = bedside handover alternative A or B); β_0 is a constant reflecting choosing handover at the bedside (rather than handover away from the bedside), and β_{1-8} are the beta coefficients (also referred to as preference weights, marginal utilities or part worths) associated with each attribute level. Invite,

Table 1
Attributes and levels used to describe bedside handover.

Attributes	Levels
I am (the patient is) invited to participate	Yes No
Number of nurses present at the handover	Only the nurse leaving and the nurse coming on The nursing team leaving and the team coming on
Family member, carer or trusted friend (of the patient) allowed to be present	Yes No
Level of (patient) involvement	I (the patient can) hear what is said I (the patient can) hear what is said and I am (is) asked questions I (the patient can) hear what is said, I am (is) asked questions and I can speak up at any time
What information related to your (patient) care is discussed	Information about my (the patient's) medical condition only Information about my (the patient's) medical condition and plan for care
Confidentiality and privacy	Sensitive information is handed over quietly at my (the) bedside Sensitive information is handed over verbally away from my bedside Sensitive information is handed over in written form

The wording contained in the choice sets was similar for both patients and nurses, with some minor differences in pronouns. Nurse wording reflected in brackets. Kindly printed with permission from Health Expectations. 2017: 20(4): 742–750.

Patient Scenario # 1		
	Handover A	**Handover B**
I am invited to participate:	No	Yes
Number of nurses present at the handover:	The nurse team leaving and the team coming on	Only the nurse leaving and the nurse coming on
Family member, carer, or trusted friend allowed to be present:	Yes	Yes
My level of involvement:	I hear what is said and I am asked questions	I hear what is said, I am asked questions and I can speak up at anytime
What information related to your care is discussed:	Information about my medical condition and plan for care	Information about my medical condition only
Confidentiality and privacy:	Sensitive information is handed over in written form	Sensitive information is handed over in written form

In this scenario I would prefer
❑ Handover A at my bedside
❑ Handover B at my bedside
❑ Handover to happen away from my bedside

Fig. 1. Example of a patient scenario from the patient survey.

Nurses, Family, Involvement, Content and Confidentiality refer to the attribute levels. The utility function for "I would prefer handover away from my bedside" assumed no invitation was given to the patient to participate and that a family member, friend or carer was not allowed to be present.

The constant and all attribute levels were effects coded and initially assumed to be random and following a normal distribution (Bech and Gyrd-Hansen, 2005; Hensher et al., 2005). Attribute levels for which there was no observed variation in preferences across the sample (that is, the standard deviation for the individual parameter estimates around the mean random parameter estimate in the MXL model was not significant at a 5% level) were then specified to be fixed using a backward step approach.

For attribute levels that explained significant variation in patient preferences, participant characteristics were included in the model in order to explain the variation in preferences across the sample (de Bekker-Grob et al., 2012; Hensher et al., 2005). No socio-demographic characteristics were included in the nurses' model as exploratory analysis suggested that no nurse socio-demographic characteristics were observed to explain preference heterogeneity at conventional significance levels, suggesting the smaller sample size for nurses may not sufficient to support an analysis of preference heterogeneity. Individual characteristics were also effect coded. A backward step regression method was used, whereby all features were entered in the model, and then systematically dropped with the least significant in explaining heterogeneity for any attribute level being dropped first. All preliminary models were estimated using 20 Halton draws to specify the distribution of the random coefficients; the final model was then estimated using 1000 Halton draws (Hensher et al., 2005).

2.6.2. Preference scores

The mean preference weight estimated for each attribute level was used to indicate its relative rank of importance for patients and nurses, using the same approach employed in the Australian study (Whitty et al., 2017). Briefly, scores reflecting the relative importance of different handover characteristics were derived by rescaling the differences between model coefficients such that the

Table 2
Participant characteristics (Patients, $n = 218$; Nurses $n = 101$).

	Patients n (%) or Median (IQR) $n = 218$	Nurses n (%) or Median (IQR) $n = 101$
Recruited from Hospital A	107 (49.1)	49 (48.5)
Age (years)	68 (IQR 57–79)	29 (IQR 26–40)
≥65 y (patients)	134 (61.5)	–
≥40 y (nurses)	–	28 (27.7)
Female	101 (46.3)	86 (85.2)
Born in Sweden	187 (85.8)	84 (83.2)
Swedish mostly spoken at home	201 (92.2)	93 (92.1)
Has condition making it hard to verbalize with nursing staff	7 (3.2)	–
Highest education high school or below	148 (67.9)	–
Lives alone	122 (57)	–
Previous hospital admission in the last year	1 (range 0–77)	–
Overall health (1=very poor, 10=excellent)	6 (IQR 4–7)	–
≥6	113 (52.1)	–
Self-reports any pain	100%	–
No pain	73 (33.5)	–
Length of stay at time of survey (days)	5 (IQR 3–8)	–
>6 d	86 (39.5)	–
Patients occupying other beds in room	218 (100)	–
Only one patient occupying other bed in room	20 (9.17)	–
>1 patient occupying other bed in room	198 (90.83)	–
Time working as a nurse (years)	–	3.3 (IQR 1–9)
≥5 y	–	35 (34.7)
Most often work on a medical ward	–	96 (95.05)
Works in more than one hospital	–	8 (7.9)
Level RN	–	87 (86.1)
Specialist nurse	–	3 (3.0)
Head Nurse	–	6 (6.0)
Team Leader	–	4 (4.0)
Other	–	1 (1.0)
Supervisory responsibility	–	48 (47.5)
Number of patients in care this shift	–	6 (IQR 5–7)

IQR, Interquartile range.

largest improvement between attribute levels was given a score of 100 in the patient model. All other improvements were then allocated a score of less than 100 relative to their importance according to the patient model. For the nurse model, the nurse model parameter for the attribute level that was ranked most important by patients was used as the reference level and was thus allocated an importance score of 100 for nurses. Improvements in all other attributes were then scored relative to this.

It should be noted that this scoring approach allows the absolute size of the importance of different handover characteristics to be compared within each sample (patients or nurses), but not directly between the patient and nurse samples. However, this approach does allow a comparison of the consistency of ranking of the importance of handover characteristics between patients and nurses.

3. Findings

3.1. Participant characteristics

The baseline characteristics of the included survey respondents are presented in Table 2. A total of 218 patients and 101 nurses completed the survey. The response rate was 75% for patients and 87% for nurses. Patients were elderly, almost half were female and they had been hospitalized for a median of 5 days at the time of the survey completion. Nurses were younger, on average about 30 years old and most were female. Nurses were not very experienced, practicing for an average of just over 3 years and 10% had positions as head nurses or team leaders. Approximately half had supervisory responsibilities.

Seventy-two patients declined participation, median age was 76.5 years, whereof 40 were male and 32 were female. The most common reason for not participating was being too tired ($N = 40$), no interest of the study ($N = 16$) or having cognitive or disease related problems. Fifteen nurses declined participation, median age 33 years, two were men and 13 were women. Fourteen of them explained they had not enough time and one was not interested.

Table 3
Preferences for handover at bedside/elsewhere (raw choice data).

Choice	Proportion (%)	Count
Patients		
Handover at the bedside (A)	39.3	514
Handover at the bedside (B)	35.1	459
Handover elsewhere	25.6	335
Nurses		
Handover at the bedside (A)	26.2	238
Handover at the bedside (B)	26.3	239
Handover elsewhere	47.5	432

A = Hospital A, B = Hospital B.

3.2. Preferences for handover at the bedside

A total of 1308 (patients) and 909 (nurses) choice observations were included in the preference models (6 choices from 218 patients and 9 choices from 101 nurses). The raw choice data (Table 3) suggest patients have a strong preference for handover at the bedside, with this being chosen by patients for 74.4% of choices. However, nurses chose more evenly between handover at or away from the bedside, with only about half their choices (52.3%) being for bedside handover.

Results obtained from the MXL models are shown in Supplementary Table S1 and Supplementary Table S2. These models control for the different attribute levels shown to respondents in the choices. For patients, the constant is positive, comparatively large, and significant ($p<0.01$), reflecting a strong 'average' preference for handover at the bedside rather than away from the bedside. For nurses the constant reveals a different overall preference; it is

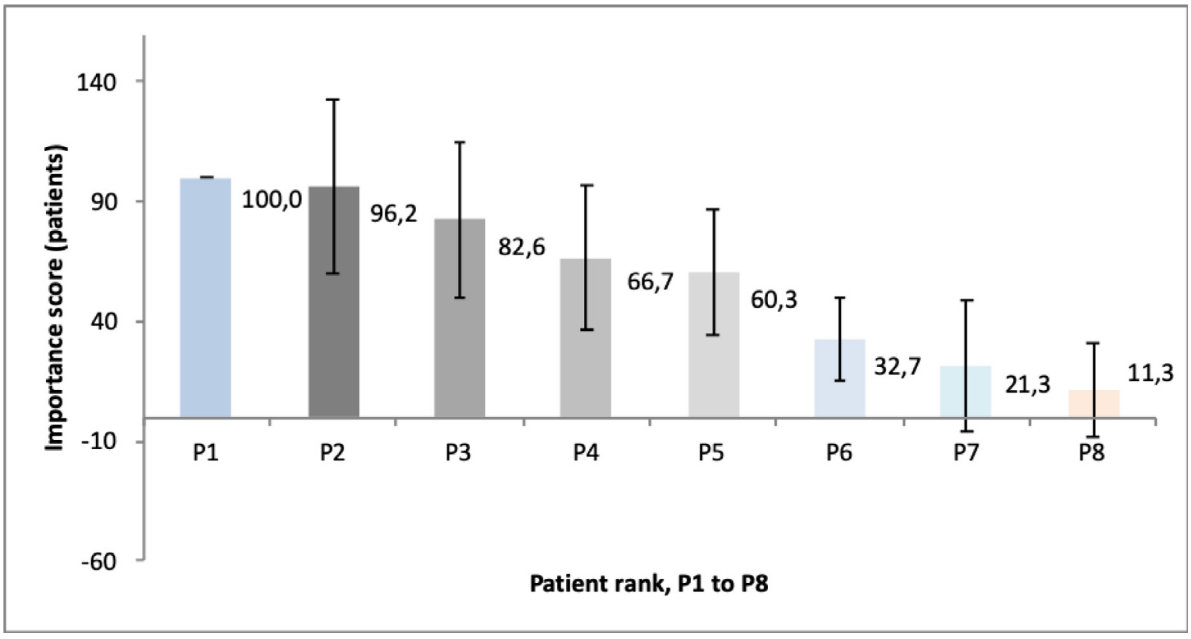

Fig. 2. Patients' importance scores for the characteristics of bedside handover
Bars indicate 95% confidence intervals.
P1 Hear, ask, speak instead of hear
P2 Invited to participate
P3 Hear, ask instead of hear
P4 Care and plan instead of care only
P5 Family/carer/friend allowed
P6 Sensitive information verbally away instead
P7 Sensitive information in written form
P8 Nurse rather than team present.

negative and significant ($p = 0.038$), reflecting an 'average' preference for handover away from rather than at the bedside. However, for both patients and nurses there is significant variation between individuals in preference for where handover takes place (indicated by the large and significant standard deviation parameters for the constant in Supplementary Tables S1 and S2; ($p<0.01$)).

3.3. Preferences for the characteristics of bedside handover

3.3.1. Patient preferences

For the patient data optimal MXL model (AIC/N 1.374), substantial heterogeneity was observed around the mean parameter for the constant and 6 attribute levels ($p<0.05$), which were retained as random in the model. Four socio-demographic variables were observed to explain preference heterogeneity ($p<0.05$) in the initial models and were retained in the final model: good health, born in Sweden, being in bed and days staying in the hospital. Only two of these remained significant when the final model was run at 1000 Halton Draws: good health and days in hospital. The final MXL model had a pseudo R^2 of 0.40 representing an acceptable fit for a discrete choice model.

For patients, three of the six attributes were observed to significantly drive choice of handover after controlling for variation in preferences (Supplementary Table 1, $p<0.05$). These results suggest that patients are more likely to choose handover when the patient is invited to participate in handover, their level of involvement is higher, and when a family member, carer or friend is invited to participate.

Overall for patients, the mean importance scores for each attribute level are presented in Fig. 2. Patients perceived their level of involvement in handover to be highly important, with being able to speak up as well as to hear what is said being the most important characteristic (importance score 100), closely followed by being invited to participate in handover (2nd rank) and being asked questions as well as hear (3rd rank), as the most important characteristics of handover. The different options for handing over sensitive information (quietly at bedside, verbally away from bedside, or in written form) and having only a nurse present rather than a team present at handover were not generally perceived to be of importance for patients.

3.3.2. Nurse preferences

For the nurse data the optimal MXL model (AIC/N 1.282) exhibited an acceptable fit, with a pseudo R^2 of 0.43. The mean importance scores for bedside handover characteristics for nurses are presented geographically in rank order of importance by strength of preference for nurses in Fig. 3.

For nurses, two of the six attributes were observed to significantly drive choice for the average respondent (Supplementary Table S2, $p<0.05$): whether the patient was invited to participate in handover and the information that was provided. There was a trend for the level of involvement, whether a family member, carer or friend was invited to participate, and the number of nurse present, to impact choice ($p<0.1$); although these characteristics were not observed to do so at conventional significance levels.

Overall, nurses considered that patients being invited to participate was the most important characteristic of handover (1st rank), followed by the higher levels of involvement of patients being asked questions and being able to speak up (2nd rank) or being asked questions (3rd rank) as well as to hear. Patients having a care plan in place in addition to discussing information about the patient's medical condition (4th rank), having only the individual nurses going on/off duty rather than the whole team present (5th rank) and having a family member, carer or friend allowed to be

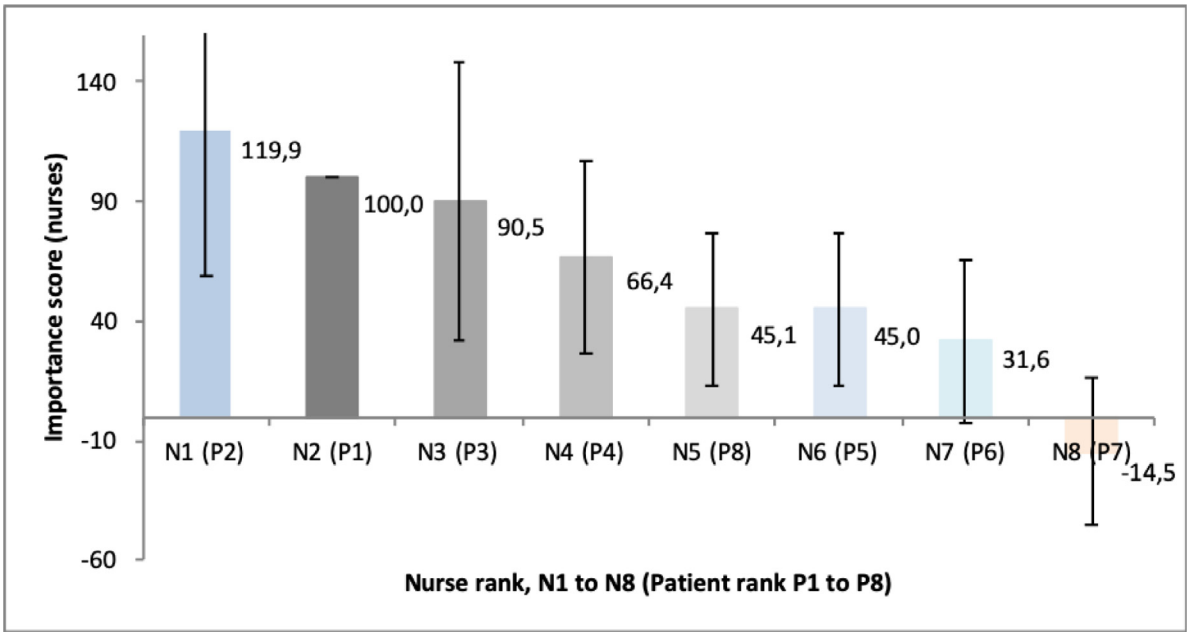

Fig. 3. Nurses' importance scores for the characteristics of bedside handover
Rank order by strength of nurse preference (N1–N8). Difference in rank from patient rank (P1–P8) highlighted in italics. Bars indicate 95% confidence intervals.
N1 (P2) Invited to participate
N2 (P1) Hear, ask, speak instead of hear
N3 (P3) Hear, ask instead of hear
N4 (P4) Care and plan instead of care only
N5 (P8) Nurse rather than team present
N6 (P5) Family/carer/friend allowed
N7 (P6) Sensitive information verbally away
N8 (P7) Sensitive information in written form.

present (6th rank), also appeared to be important for nurses. The different options for handing over sensitive information (quietly at bedside, verbally away from bedside, or in written form) were not generally perceived to be of importance for nurses in their choice of handover.

3.3.3. Comparison of patient and nurse preferences

Patient and nurse preferences for handover differ in terms of importance ranking, as showed in Figs. 2 and 3. However, on close examination these differences seem generally minor. The four most important characteristics are the same for both patients and nurses. Moreover, although the rank order for the first two characteristics are reversed for nurses, the relative scores are not dissimilar. The characteristics of least importance are also similar for the two groups.

The most notable difference between the patient and nurse importance scores relates to the number of nurses present at handover. Having only the individual nurses going on/off duty rather than the whole team present was of greater importance for nurses than for patients (5th rank for nurses versus 8th rank for patients).

3.3.4. Variation in preferences for the characteristics of handover across patients

Substantial variation in preferences was observed for both patients and nurses (Supplementary Tables S1, S2). For patients, two socio-demographic and health characteristics were observed to be significantly associated with preference for handover characteristics: level of overall self-reported health ($p<0.05$) and days staying at the hospital ($p<0.01$). Being able to speak up at handover was of greater importance for those who perceived themselves to be in comparatively good health, and having a plan for care discussed in addition to information about their medical condition was of less importance for those who had spent more than 6 days in hospital.

4. Discussion

This is the first European study to quantify and compare patients' and nurses' preferences for bedside handover. In about three quarters of the choices, patients preferred handover to occur at bedside, whereas nurses only chose this option in about half of the choices. Patients' support for bedside handover have been documented in a number of other studies (Bressan et al., 2019; Tobiano et al., 2018). Nurses' choices may reflect the body of research focusing on the challenges of undertaking bedside handover. For example, previous research has shown nurses believe bedside handover will take more time (Anderson et al., 2015). Lack of time could also be related to nurse-patient staffing ratios, which has been associated with predictors for nursing care left undone, but also related to the nurses' working environment, and requirement to carry out non-nursing tasks (Ausserhofer et al., 2014; Kalisch et al., 2012; Wakefield, 2014). Others have shown nurses feel bedside handover could compromise patient confidentiality (Anderson et al., 2015; Malfait et al., 2019b), or not allow full disclosure of important information (Radtke, 2013) and some nurses lack confidence in handing over information in front of the patient (Johnson and Cowin, 2013). In a recent study nurses even described that bedside handover could lead to loss of socializing and collegiality, and the nurses would become more self-centered if there was no collective handover (Malfait et al., 2019a). However, a prerequisite for bedside handover is patient participation, and it is a complex intervention for nurses to make this happen (Malfait et al., 2019b) and studies have shown nurses actively avoid it (Tobiano et al., 2018). But, when healthcare workers decided to

share power with the patients, patient participation was possible (Longtin et al., 2010).

Patients in the present study had strong preference for being an active partner in bedside handover through listening, asking and being able to speak when wanted/required. When the patients are active in handover the risk of miscommunication decreases and the risks to patient safety decrease (Anderson and Mangino, 2006). A recently published report from the Swedish Agency for Health and Care Services Analysis concerning person-centred care, showed that patients should be listened to, and asked about their experiences and resources to improve care (Westling et al., 2018). Patients want to be treated with dignity, compassion and respect. The same report targets that person-centred care enables communication from patients' perspectives concerning their own prerequisites, needs and willingness to contribute information in order to fulfil goals within care (Westling et al., 2018). Bradley and Mott (2014) found that patients perceived nursing bedside handover in general in three ways; first as enjoyment when nurses spent time with them; second they were able to identify their nurse in charge; and third the patients felt involved in care and decision making (Bradley and Mott, 2014). It was notable that patients in their study reported participation as only of third importance.

Where or how sensitive information was presented was not important for the patients in general, neither was having two off and ongoing shift nurses nor a team of nurses seen as essential during bedside handover. In a study by Köberich (2014), patients who had undergone cardiovascular surgery, believed the information was kept confidential regardless of style of bedside handover. These patients found nursing handover was not disruptive and moreover, they were not concerned if a fellow patient heard information about their disease and care (Köberich, 2014). In our study, patients ranked delivering of sensitive information slightly more important than did nurses, which is different to other studies where nurses were more concerned about confidential issues (Anderson et al., 2015; Oxelmark et al., 2017; Ringdal et al., 2017). Furthermore, patients may have different preferences for sensitive and confidential information (Malfait et al., 2019b; Tobiano et al., 2018), in our survey we asked for preferences for the way sensitive information was delivered. The nurses employed discretion during bedside handovers by discussing sensitive information elsewhere for example in a traditional closed door office consistent with previous research (Bradley and Mott, 2014; Liu et al., 2012). How the sensitive information was handed over (quietly at bedside, verbally away from bedside, or in written form) was not observed to be of importance for the nurses in our study.

The nurses highest ranking attributes, to invite patients to participate and the importance of enabling patients to be listened to, to be asked and to be invited to speak, were consistent with those ranked highest by nurses in an Australian study (Whitty et al., 2017). This is encouraging because it suggests that there is support for active patient engagement during the handover. Others have found that inviting patients to participate is a key to ensuring active participation occurs (Chaboyer et al., 2016). This is also in line with person-centered care which has shown significant qualitative positive effects for patients (Ulin et al., 2015). Bedside handover may improve patient participation, which may result in better experience (McMurray et al., 2011) giving the patient a feeling of accessible care and patient satisfaction (Mako et al., 2016) and patients can contribute information during the process which will improve quality of care and patient safety (Tobiano et al., 2018). Patients in our study perceived their level of involvement in handover to be highly important, with being able to speak up as well as to hear what is said being the most important characteristic.

The results indicate the implications of bedside handover to be of potential use to avoid misunderstandings and miscommunications between nurses and patients. In traditional care, the norm is that patients receive care and have a passive voice. Bruton et al. (2016) showed that nurses working with bedside handover had the opportunity to introduce the ongoing shift nurse to the patient with a person-centred approach. In addition, the patients could be invited to participate and ask questions and correct errors. However, in the same study nurses expressed that patients interrupted and slowed down the handover process. The nurses conveyed that patients overhearing what was said, was perceived as both positive and negative (Bruton et al., 2016). Patients who are invited to participate in handover are enabled to become an active partner in the team and their voices will be heard.

Interesting differences were observed in handover preferences in the Swedish context as compared to an earlier Australian study (Whitty et al., 2017), suggesting preference for handover is specific to a health system context and culture and varies from country to country. Nurses in the Australian study appeared to generally prefer bedside handover and tended to have greater concern about how sensitive information was handed over whilst Swedish nurses preferred it away from bedside. Australian and Swedish patients likewise found it quite unimportant to receive sensitive information in writing instead of quietly at bed. In the Australian study patients perceived their level of involvement in handover to be highly important. Australian and Swedish patients both preferred having two nurses present rather than a team of nurses (off and ongoing shift) present at handover (Whitty et al., 2017).

This study has several limitations which require acknowledgement. First, the use of an electronic tablet-assisted face-to-face survey with set scenarios may have limited the participants' ability to express their individual opinions. On the other hand, important scores for bedside handover were identified. Second, most of the 72 patients who declined participation indicated it was because of fatigue related to their condition or a lack of interest in the research project. Anecdotally, we did not identify any particular characteristics of the patients who declined to participate, but as we did not have ethical approval to collect data on the non-participants, we are unable to substantiate this impression. Third, the sample size may not have been sufficient to support the analysis of which socio-demographic characteristics were associated with preference heterogeneity, which is exploratory in nature – particularly for the nurse sample. Thus, it is possible that patient and nurse characteristics associated with different preference for handover were not identified as such in this study. Fourth, the survey questions were in Swedish which may have excluded non-native speaking people. Fifth, data were collected in a Swedish setting and the results may not be generalizable to other contexts, although our results are broadly similar to another study in Australia. All patients shared rooms, none of them had a private room which may be a geographical and hospital variation. Last, bedside handover is not common in Swedish hospitals, thus a lack of first hand experience may have influenced the findings.

5. Conclusion

The patients in this Swedish, and only the second international study (Whitty et al., 2017) strongly preferred handover at the bedside, which was generally contradictory to nurse preferences. However, the preferred characteristics of handover appear to be largely similar for both patients and nurses, with both ranking patients being invited to participate and their level of involvement as highly important. The mechanism by which sensitive information was handed over was of minimal importance. When implementing bedside handover in a Swedish context differences between patients and nurses' preferences must be considered, this could jeopardize the future introduction of bedside handover.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ijnurstu.2019.103444.

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