Patient satisfaction as an outcome of individualised nursing care

Riitta Suhonen RN, PhD (Professor)[1], **Evridiki Papastavrou** RN, PhD (Lecturer Principal Investigator)[2], **Georgios Efstathiou** RN (PhD-student, Special Teaching Staff)[2], **Haritini Tsangari** PhD (Statistician, Associate Professor)[3], **Darja Jarosova** RN, PhD (Associate Professor, Head of Department)[4], **Helena Leino-Kilpi** RN, PhD (Professor, Chair/Nurse Manager)[5], **Elisabeth Patiraki** RN, PhD (Associate Professor)[6], **Chryssoula Karlou** RN, PhD(c) (Major Nurse in Air Force)[6], **Zoltan Balogh** RN, PhD (Associate Professor)[7] and **Anastasios Merkouris** PhD (Associate Professor, Chair of the Department)[2]

[1]Department of Nursing Science, University of Turku, Turku, Finland, [2]Department of Nursing, Cyprus University of Technology, Lemesos, Cyprus, [3]University of Nicosia, Nicosia, Cyprus, [4]Department of Nursing and Midwifery, University of Ostrava, Ostrava, Czech Republic, [5]University of Turku and Hospital District of South-Western Finland, Turku, Finland, [6]National and Kapodistrian University of Athens, Department of Nursing, Athens, Greece and [7]Faculty of Health Care Sciences, Semmelweis University, Budapest, Hungary

Patient satisfaction as an outcome of individualised nursing care

Background: The association between individualised nursing care and patient satisfaction has been previously found. However, there is a lack of studies examining this association between individualised care and patient satisfaction in a cross-cultural study.

Aims: This study examines the association between individualised care and patient satisfaction in a sample of general surgical patients from five European countries.

Methods: A cross-sectional design and survey method were used to collect data from general surgical patients (N = 1315, response rate 78%) in 72 inpatient wards in 26 general acute hospitals' in 2009 using self-completed questionnaires the Individualised Care Scale and the Patient Satisfaction Scale. Data were analysed using descriptive statistics, Pearson correlation coefficients and multiple stepwise regression analyses.

Results: Surgical patients reported that the care they received was only moderately individualised overall, but individuality was taken into account well in patients' clinical situation and decisional control over care. Patients were satisfied with their care, mostly with the technical aspects of care and least with the information given. There were between-country differences in patients' perceptions of individuality in care and patient satisfaction. A positive correlation between the level of individualised care received and patient satisfaction was found, confirming that individualised nursing care delivery influences patients' satisfaction with care and demonstrating that this quality of care indicator might be able to be used as a predictor of patient satisfaction, one outcome of care.

Conclusion: The findings of this study strengthen previous results and further reporting the existence of a relationship and the positive correlation between individualised care and patient satisfaction. The results can inform administrative decisions and policy on introducing nursing approaches to care that would increase patient satisfaction.

Keywords: individualised care, patient satisfaction, survey, cross-national, multiple regression analysis, nursing.

Submitted 30 January 2011, Accepted 30 September 2011

Introduction

There has been an increasing interest in patients' perspective of health care delivery as part of the drive to find out how health systems can better respond to individual needs and preferences (1, 2). Most national and international health policies regard patient-centredness as one of the key starting points (2, 3) and expect health care professionals to adopt a more holistic approach to care (2). Although many health care organisations have transformed the effectiveness of care services to achieve positive patient outcomes (4, 5) such as patient satisfaction (5), they have ignored the needs of individual patients. This has been demonstrated by the evidence of service

Correspondence to:
Riitta Suhonen, Department of Nursing Science, University of Turku, FIN-20014, Turku, Finland.
E-mails: suhonen.riitta@kolumbus.fi and riisuh@utu.fi

provision omissions (6, 7) and the delivery of services that are not individualised to patients (6, 8, 9) and which do not meet their diverse needs and preferences (8, 10). Care has been viewed as impersonal and technical rather than individualised (10), and research into the effectiveness of different care delivery changes has been based on average population benefits (11).

Previously between-country differences in patients' perceptions of individualised nursing care (12, 13) and the association between individualised care and patient satisfaction have been found (7, 14, 15). However, there are lack of studies examining this association between individualised care and patient satisfaction in a cross-cultural context.

Related literature

Individualised nursing care

Individualised nursing care is designed to meet the needs and preferences of a particular patient at a particular time recognising the context in which the care is provided (16). Such care requires nurses to take account of patient's beliefs, values, hopes, needs and desires (15–17) and their differing states of health and demographic status (18, 19).

Suhonen et al. (9, 17) defined the perception of individualised care from the patients' perspective as the provision of support for individuality during specific nursing interventions and care delivery generally. Suhonen (17) discussed three components of individualised care: (i) the clinical situation, the patient's individual reaction to the clinical aspects of their care (ii) the personal life situation, the background and personal issues the patient may have and (iii) the level of decisional control over care that the patient is able and willing to achieve. These aspects of individualised care vary between patients, and so information must be collected and used so that patients feel their individuality is genuinely recognised and taken into account in their care.

Patient satisfaction with nursing care

Most definitions of patient satisfaction include the elements of subjectivity, expectations and perceptions (20, 21). Patient satisfaction has been described as the absolute outcome achieved in health care (21) and is ''an important measure of quality of care giving information on the provider's success at meeting those client values and expectations which are matters on which the client is the ultimate authority'' (22: 25). Pascoe (23) defined patient satisfaction as a recipient's reaction to salient aspects of the context, process and result of the service experience. Furthermore, satisfaction is a useful indicator of health care quality (24) and a predictor of subsequent health-related behaviour (23). However, to evaluate the quality of care provided by nurses, one must identify those elements most favourably associated with patient satisfaction (25). To do this, it is useful to measure patient satisfaction with particular processes or events associated with the care delivered (20, 26–28).

Individualised nursing care in association with patient satisfaction

Individualised care has been found to be associated with positive patient outcomes, such as patient satisfaction (9, 29, 30). The level of evidence about this association varies and has been described in correlation and intervention studies. Correlation studies are exemplified by reports that individualised care positively correlates with satisfaction with care in a maternity care context (31), in a neurosurgical context (30), with adult patients with medical and surgical conditions (9, 32) and patients with cystic fibrosis (33). Additionally, Hornsten et al. (34) found that alongside satisfying encounters characterised by individualised diabetes care, many people were dissatisfied with clinical encounters demonstrating elements that threatened personal perceptions of self and identity.

Although most of these studies demonstrate an association between individualised care and patient satisfaction, they do not provide evidence for a causal relationship. Three other studies are reported here. In an intervention study, Leeman et al. (7) tailored a diabetes self-care management intervention to older African-American women's cultural and functional differences. They reported high levels of satisfaction and improvements in self-care practices. In a sample of 861 hospitalised adult patients, Suhonen and colleagues (14) provided strong support for the positive association of individualised care and patient satisfaction using structural equation modelling, linking individualised nursing care directly to the positive patient outcomes of patient satisfaction and patient autonomy. Lastly, in a pretest–post-test designed randomised controlled study, Wolf et al. (15) examined the impact of patient-centred care (PCC) on patient satisfaction and reported that the PCC group rated satisfaction higher than the control group.

Aim

The aim of this cross-national study was to examine the association of individualised care with patient satisfaction in a sample of general surgical patients from five European countries. Given the body of evidence described above, the research assumed a relationship between individualised care and patient satisfaction. The following research questions were set: (i) what is the association between patients' perceptions of individualised care and patient satisfaction with nursing care? (ii) are there between-country differences in patients' perceptions of individuality

in care and satisfaction? (iii) which aspects of individualised care may predict patient satisfaction?

Methods

Design, settings and sample

A cross-sectional design and survey method were used to collect data from surgical patients from 72 inpatient wards in 26 general acute hospitals in five countries: the Czech Republic, Cyprus, Finland, Greece and Hungary in autumn 2009 (Table 1).

The sample size required was calculated using NQuery Advisor for each of the Individualised Care Scale (ICS) and the Patient Satisfaction Scale (PSS). Calculations assumed a difference of ±0.5 between the means in the items of the ICS is significant. At least 233 completed patient questionnaires from each country were needed for the comparison to have enough power ($\alpha = 0.01$, power 90%). Each patient was asked to complete the ICS, the PSS and a socio-demographic questionnaire. To be eligible for the study, respondents were required to (i) be hospitalised in a general surgical unit for surgery or any other surgical treatment, (ii) have spent at least 2 days in the hospital as an inpatient, (iii) have sufficient mental capacity to complete the questionnaires independently, (iv) be able to communicate in the native language of the participating country and (v) be willing to participate in the study as a volunteer. Using convenience sampling, a total of 1682 questionnaires were distributed, 1342 were returned (response rate 80%) and of those, 1315 were eligible for analysis (final response rate 78%).

Measures

The ICS (12, 13, 17, 35) has two parts [Support of Individuality (ICS-A) and Perceptions of Individuality in care (ICS-B)] designed to explore patients' perceptions of the support and provision of individualised care. ICS-A is concerned with how individuality has been supported through nursing activities, and ICS-B focuses on the individuality the patient perceived in care. In this analysis, only the 17-itemed ICS-B was used.

The ICS-B consists of three subscales each using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree with a neutral mid-point = 3): (i) clinical situation (ClinB, seven positively worded items), (ii) personal life situation (PersB, four items) and (iii) decisional control over care (DecB, six items). The psychometrics and validity of the ICS instrument have been evaluated in four data sets (14, 35) and prior to this study were available in Finnish and Greek (12, 13, 36).

The original PSS was developed within a research project considering collaborative decision-making (37) (HS Kim, unpublished data). The PSS was further developed by Kim (38) (HS Kim, unpublished data) to gather patient views about nursing care comparing patient satisfaction under different nursing regimens or as an outcome for particular nursing interventions. The latest version of the PSS used in this study (HS Kim, personal communication) is an 11-item instrument conceptualised on two dimensions according to (i) the components of care needs: technical/scientific care needs, information care needs, and interaction/support care needs and (ii) evaluative criteria: accessibility, ability/competency and conduciveness. Each item within the components has a four-point Likert scale: 1 = highly dissatisfied, 2 = dissatisfied, 3 = satisfied, 4 = highly satisfied and produces one score for the scale. The components of care needs dimension of the PSS were used in this study: technical–scientific, information and interaction/support. Summing the item values and then dividing these figures by the number of items in the component to obtain average scores for the components produced the sum variables that were used to describe the dimension. The higher the score, the more satisfied the patient.

There is limited published psychometric evaluation on the PSS. Cronbach alpha coefficients of 0.77–0.89 have been reported for each of the dimensions (39, 40), the items correlated strongly with the dimensions and the dimensions with the total PSS (40). A test–retest reliability of 0.7 showed reasonable stability over time (40). Additionally, three-factor analytic procedures supported the three-factor solution with the technical–scientific, informational and interaction/support factors, explaining approximately 77% of the variance. Finally, translation procedures including a suitability evaluation, assessment

Table 1 Sampling frame and respondents

	Total sample	Czech Republic	Cyprus	Finland	Greece	Hungary
Number of hospitals	26	5	6	7	4	4
Number of wards	72	18	15	14	15	10
Number of distributed questionnaires	1682	380	285	357	280	380
Number of returned questionnaires	1342	287	239	292	250	274
Number eligible for analysis	1315	280	220	291	250	274
Response rate	78	74	77	82	89	72

of conceptual relevance and standard forward–back translation with research group discussion (41) were used to obtain the Hungarian and Czech Republic versions of the ICS and the Hungarian, Czech Republic and Greek versions of the PSS. The scales were pilot-tested (n = 30 patients and 30 nurses in each country), from which no changes to the instructions or questionnaires were required.

In addition, the following socio-demographic variables were requested: age, the length of hospital stay, gender, education, whether the patient was operated (yes/no) and type of admission (planned or scheduled admission/ emergency admission).

Data collection and ethical considerations

This study was conducted according to general ethical standards (42) and study protocols in each participating country. The Ministry of Health of Cyprus [code Y.Y. 5.14.02.4(2)] and the Cyprus National Bioethics Committee (code ΕΕΒΚ/ΕΠ/2008/1) reviewed and approved the overall research protocol as Cyprus was the co-ordinator of the project. Research partners in each participating country were responsible for obtaining ethical approval and permission to collect the data according to their national standards. Permissions to use the instruments were obtained from the copyright holders.

Contact persons in each country distributed the questionnaires to patients. Respondents completed the questionnaires at the hospitals, after formally being discharged but before leaving hospital for home, leaving the questionnaires, sealed in the envelopes, in designated boxes or offices in each ward. Prior to the respondents receiving a questionnaire, they received written and verbal information about the purpose of the study, including its voluntary nature, the right to withdraw and a guarantee of the maintenance of anonymity, and confidentiality of the data. The return of the completed questionnaire was considered to be evidence of informed consent for participation in the study.

Data analysis

Data were analysed using SPSS 16.0 for Windows (SPSS Inc., Chigaco, IL, USA). First, descriptive statistics, such as means, standard deviations, 95% confidence intervals (CI), frequencies and percentages were used to characterise the variables measured at item and sum variable (component) level. Secondly, one-way analyses of variance (ANOVA) with Brown–Forsythe statistic test for the equality of means and Tamhane's pairwise comparisons were computed (Levene's test was used to test whether homogeneity of variance had been violated) to compare the means by country. Thirdly, Pearson's correlation coefficients for the measured ICS subscales and the PSS were used.

Fourthly, stepwise multiple regression analysis was used to examine the level of determination the ICS single sub-scales (clinical situation, personal life situation, decisional control over care) conceptualised to decide how far the individualised care scores explained the variance in the PSS scores. The results demonstrate the overall explanatory power of all the predictor variables (R^2) and the relative importance of individual predictors in the specific analysis when the standardised regression coefficient (beta) is inspected. Multicollinearity was examined using tolerance values and the variance inflation factor (VIF). These indices define the proportion of variability of that variable that is not explained by its linear relationships with the other independent variables in the model (43). Finally, Cronbach's alpha coefficients were calculated as a measure of internal consistency for the scales.

Results

Respondents

The mean age of the respondents ranged from 47.1 ± 18.2 to 59.1 ± 14.4 years, the youngest were in Cyprus and the oldest in Finland (Table 2). Approximately half of the respondents were female, but in Hungary, two-thirds were female. The majority of the respondents had surgery during their hospitalisation (64–87%). Cypriot respondents were admitted as an emergency case more often than respondents from other countries. The average length of the hospitalisation ranged from 6.0 to 16.7 days, the shortest stay was in Finland and the longest in Hungary.

Descriptive statistics

Surgical patients were satisfied with the care (Mean$_{total}$ 3.31 ± 0.59). Within this total, the highest scores were achieved in the technical qualities of care component, and the lowest, least satisfied, were with the information care needs (Table 3). In the ICS-B, patients perceived that the care they received was only moderately individualised (Mean$_{total}$ 3.83 ± 0.86). Respondents reported that their decisional control over care was well maintained, as was the individuality of their clinical situation, but their personal life situation was not perceived to be taken into account in care to any great extent.

The results of the cross-country comparison (ANOVA) showed that there were significant cross-country differences in the different national means of the PSS (Brown–Forsythe statistic = 22.085, p < 0.001) and the ICS-B (Brown–Forsythe statistic = 23.09, p < 0.001). In the PSS, Tamhane's pairwise comparisons showed that Greece had a significantly lower mean compared with all the other countries (p < 0.001 for Cyprus, Hungary and Finland and p = 0.048 for the Czech Republic). Moreover, the Czech Republic had a significantly lower mean compared with

Table 2 Demographic data of the respondents

	Total sample N = 1315	Czech Republic n = 280	Cyprus n = 220	Finland n = 291	Greece n = 250	Hungary n = 274
Age, mean (SD)	53.8 (16.8)	51.6 (17.1)	47.1 (18.2)	59.1 (14.4)	53.4 (18.4)	56.3 (13.5)
Range	17–94	18–94	17–86	17–88	18–90	20–86
Hospital stay (days), mean	10.2 (12.4), 1–120	10.6 (9.7), 1–62	6.3 (7.5), 1–75	6.0 (5.6), 1–43	11.0 (12.6), 1–120	16.7 (18.8), 1–110
Gender (%)						
Male	48	54	55	47	53	34
Female	52	46	45	53	48	66
Education (%)						
No education	2	1	2	1	4	0
Primary	25	17	24	48	24	14
Secondary	43	52	51	24	38	54
College	17	13	12	20	16	21
University	13	17	11	7	18	11
Operation (%)						
Yes	79	79	64	78	87	84
No	21	21	36	22	13	16
Type of admission (%)						
Planned/scheduled	65	62	45	68	62	84
Emergency	35	38	55	32	38	16

Cyprus, Finland (both $p < 0.001$) and Hungary ($p = 0.004$). In the ICS-B, Tamhane's pairwise comparisons showed that once again Greece had a significantly lower mean compared with all the other countries ($p < 0.001$). Cyprus had a significantly higher mean compared with Hungary ($p = 0.042$), the Czech Republic ($p < 0.001$) and Greece ($p < 0.001$).

Correlations

Pearson's correlation coefficients were calculated to define the relationship between the PSS and each of the subscales of the ICS-B to determine the existence, type and strength of the associations. All the subscales of the ICS-B were significantly related to the PSS, when considered individually. Pearson's correlations between the PSS and the ICS-B were moderate ranging from 0.55 to 0.65 and were all statistically significant at the level of $p = 0.01$. This means that respondents' perceptions of the maintenance of individualised care are highly positively associated with their satisfaction with nursing care (Table 4).

Stepwise multiple regression analysis

The predictive ability of the factors of ICS-B was next evaluated by regressing the PSS on the three ICS subscales, using stepwise multiple regression analyses (Table 5). Of those factors that affected the PSS, a multiple R of 0.672 was obtained, showing that 45% of the variance in the PSS was explained by all the factors of ICS-B. ClinB accounted for the largest portion of the variance (42%), and DecB had a significant contribution, with an explanation of 3%

of the variance. The positive beta-coefficients showed that patients who gave higher values individually in ClinB and DecB were more likely to be satisfied compared with other patients. PersB did not account for any significant amount of the variance of the PSS. There was no problem of multicollinearity because none of the values was larger than 10 (44).

Discussion

The findings of this study demonstrated a positive correlation between individualised care and patient satisfaction as in previous studies (7, 14, 15) which goes some way to confirming this relationship (30, 33). This is surprising because the different participating countries have differently organised and managed health care systems. One explanation may be that surgical contexts in the participating countries may have more similarities than their health care systems as a whole.

Patients' perceptions of individualised care explained 45% of the variance in patient satisfaction and within these perceptions surgical patients were mostly satisfied with the technical qualities of care and least satisfied with the level of information delivered. This may be explained if nurses' technical competences in providing care in surgical patients are similar. This might demonstrate that technical skills taught in the many kinds of nursing schools are at a similar level and are recognised as such by patients being cared for in different European countries. In contrast, abilities in meeting the informational needs of patients may vary according to the clinical and educational conditions in the participating countries. This difference is

Table 3 Descriptive statistics on the whole data level, Means for the samples by country and results of the one-way ᴀɴᴏᴠᴀ analyses for the equality of means for the cross-country comparisons

	No. of items	n	Mean (SD)	α	Czech Mean ± SD	Cyprus Mean ± SD	Finland Mean ± SD	Greece Mean ± SD	Hungary Mean ± SD	F (df) p-Value*
Patient Satisfaction Scale (PSS)	11	968	3.31 (0.59)		3.22 ± 0.60	3.51 ± 0.54	3.43 ± 0.49	3.04 ± 0.73	3.40 ± 0.52	22.08 (4) < 0.001
Technical	3	1051	3.37 (0.62)	0.84	3.33 ± 0.66	3.51 ± 0.57	3.48 ± 0.50	3.07 ± 0.76	3.54 ± 0.49	19.57 (4) < 0.001
Information	5	997	3.26 (0.63)	0.91	3.14 ± 0.63	3.42 ± 0.59	3.40 ± 0.54	3.00 ± 0.77	3.37 ± 0.62	17.44 (4) <0.001
Interaction	3	1055	3.32 (0.63)	0.86	3.30 ± 0.66	3.51 ± 0.61	3.43 ± 0.51	2.98 ± 0.76	3.43 ± 0.54	21.41 (4) < 0.001
Individuality in care (ICS-B)	17	910	3.83 (0.86)	0.93	3.76 ± 0.76	4.18 ± 0.79	3.96 ± 0.79	3.41 ± 0.95	3.94 ± 0.85	23.09 (4) < 0.001
Clinical situation	7	989	3.85 (0.95)	0.84	3.84 ± 0.80	4.17 ± 0.85	4.06 ± 0.84	3.28 ± 1.09	3.95 ± 0.97	25.55 (4) < 0.001
Personal life situation	4	976	3.56 (1.06)	0.86	3.44 ± 0.99	3.93 ± 0.97	3.60 ± 1.05	3.19 ± 1.07	3.73 ± 1.06	12.74 (4) < 0.001
Decisional control over care	6	993	4.01 (0.84)		3.95 ± 0.74	4.22 ± 0.83	4.09 ± 0.78	3.55 ± 0.95	4.28 ± 0.76	23.41 (4) < 0.001

α, Cronbach's alpha coefficient.
*Brown–Forsythe statistics.

Table 4 Correlations between the subscales of the Individualised Care Scale (ICS-B) and the Patient Satisfaction Scale (PSS)

	ICS subscales	Clinical situation B	Personal life situation B	Decisional control over care B
PSS	Pearson correlation	0.649**	0.545**	0.626**
	p-Value	<0.001	<0.001	<0.001

**Correlation is significant at the 0.01 level.

important as it has been reported that patients with adequate information become more involved in their own care and their subsequent participation in care leads to greater patient satisfaction (45).

Overall, patients perceived that the care they received was only moderately individualised and within this patients reported their decisional control over care was well maintained. It is notable that not all patients consider it important that they take an active part in decision-making (46) so a high score in this area does not necessarily reflect a high level of involvement in decision-making. Additionally, there are between-country differences in the involvement of patient decision-making concerned with differences in health and social care policies, clinical practices and organisations (12, 47). Moreover, organisational cultures in health care institutions differ from other cultures because of hospitals' unique managerial and organisational structures (48). Assumptions, values, behaviours and attitudes common in health care settings are rooted in traditions and are strictly adopted by the personnel (49).

Respondents personal life situation was largely not taken into account in the care delivered. This is similar to previous studies in different nursing care environments (12). For example, in Greece, low numbers of nursing staff inhibit the assessment and integration of patients' everyday activities that comprise the personal life situation, such as work and leisure activities, previous experience of hospitalisation, personal habits, and the level of family participation, into care (50, 51).

Limitations

Some limitations of the research need to be considered alongside the interpretation of the results. Although the sample and national subsamples were large enough justified by power calculations, the use of national convenience samples might suggest that the results are not at all generalisable to the populations from which they were taken. However, in mitigation, cautious generalisations are possible as some of the samples are representative at a national level. For example, the Cypriot sample represents total sampling of the hospitals on the island, and the Greek data were obtained from hospitals that take patients from all over the country. In Finland, data were collected from numerous

Table 5 Stepwise multiple regression of the three factors of Individualised Care Scale (ICS-B) on the Patient Satisfaction Scale (PSS)

Variable	Multiple R	R^2	R^2 change	Beta-coefficient	T	p-Value	VIF
Clinical situation B	0.652	0.425	0.425	0.265	8.763	<0.001	3.812
Decisional control over care B	0.672	0.452	0.027	0.203	6.480	<0.001	2.722
Personal life situation B	0.672	0.452	0.000	0.011	0.464	0.643	3.095

R^2, explanatory power of the variable; beta-coefficient, standardised regression coefficient (beta); VIF, variance inflation factor.

hospitals at all levels, university, central and regional, enhancing the representativeness of the samples. Additionally, within these mitigations, the response rates were good (72–89%) further enhancing representativeness.

The explanatory power of this five European country study was increased beyond the national perspective of previous studies (7, 15, 35). Moderate correlation coefficients, showing positive and statistically (p < 0.001) significant correlations between individualised care subscales and patient satisfaction, ranged from 0.545 to 0.569 (52). However, the content of the two scales, the ICS and the PSS, which represent two different concepts, may share similar interpretations as the coefficient of determinations range was 0.425–0.452 (52). The ICS and the PSS include domains where nursing care delivery and nurses' activities have a strong influence on patients' care satisfaction and individualised care delivery. However, it should be noted that a good experience of care has been shown to influence the expectation of patients in future care periods.

Although patients' perceptions of individualised care explained 45% of the variance in patient satisfaction, there is still a need to explore the patients' framework for evaluating care, their perceptions of individualised care and of satisfaction, from a qualitative perspective, in an inductive study of the patients in context. This would complement quantitative studies answering the criticism that there is a danger in relying too heavily on patient's questionnaire-based, superficial responses to care. In addition, the association between individualised care and patient satisfaction could be further examined using structural equation modelling, e.g. LISREL in a multinational sample to verify this association.

Conclusions

Measuring patients' perceptions of individualised care and patient satisfaction are ways to begin to evaluate and understand care quality from the patients' perspective (1, 2). Currently, there is little evidence describing the relationship between nursing care activities and their association with the patient satisfaction as an outcome of care. These findings support previous studies (7, 14, 15) further reporting the existence of a relationship and the positive correlation between individualised care and patient satisfaction (12, 13). There are between-country differences in patients' perceptions of individuality in care and patient

satisfaction. Further research will be needed to examine the effect of patient characteristics' and health care organisation and cultural variables in association with patients' perceptions of individualised care.

In previous studies, individualised care has been reported to be an activity in which nurses adjust nursing care to take account of their patients' unique states of health and demographic status (18, 19). Individualised care delivered in this patient-centred way defines caring and the nurses' role. However, studies into how this is done in practice to improve patient outcomes are few. Oflaz and Vural (53) reported that nursing care is an integrated combination of specific nursing activities, and to improve nursing practice, we need to clarify how each nursing activity affects the perceptions of patients. Although this is useful, it does not go as far as considering individualised care delivery in association with patient satisfaction, as an outcome of care. In this study, individualised care has been well correlated with patient satisfaction providing some further evidence that individualised care is a predictor of patient satisfaction.

It has been argued that care cannot be of high quality unless the patient is satisfied (54) and patient satisfaction has been found to be a predictor positive, health-related behaviour (23). As hospital stays become shorter (5) requiring patients and perhaps their families to take responsibility for their condition and situation earlier than previously, it follows that the ability of patients to care for themselves after such a hospital care episode and their satisfaction will be enhanced by individualising nursing care of each patient (14, 28). The results can be used in clinical practice because the introduction or development of individualised care can be used to increase patient satisfaction.

Acknowledgements

Author contributions

Evridiki Papastavrou, Riitta Suhonen, Helena Leino-Kilpi, Elisabeth Patiraki and Zoltan Balogh performed the study conception/design. Georgios Efstathiou, Riitta Suhonen, Darja Jarosova, Elisabeth Patiraki, Chryssoula Karlou and

Zoltan Balogh carried out data collection/analysis. Riitta Suhonen, Evridiki Papastavrou, Georgios Efsthathiou, Haritini Tsangari, Darja Jarosova, Helena Leino-Kilpi, Helena Leino-Kilpi, Chryssoula Karlou, Zoltan Balogh and Anastasios Merkouris drafted the manuscript. Helena Leino-Kilpi, Evridiki Papastavrou and Elisabeth Patiraki involved in critical revisions for important intellectual content. Helena Leino-Kilpi, Elisabeth Patiraki, Anastasios Merkouris and Riitta Suhonen supervised the study.

Haritini Tsangari is a statistical expertise. Evridiki Papastavrou, Georgios Efstathiou and Anastasios Merkouris provided administrative/technical/material support.

References

1 Kovach CR, Cashin JR, Sauer L. Deconstruction of a complex tailored intervention to assess and treat discomfort of people with advanced dementia. *J Adv Nurs* 2006; 55: 378–88.

2 WHO. *People-Centred Health Care. A Policy Framework*. 2007, World Health Organisation, WHO Press, Geneva.

3 Hofmarcher MM, Oxley H, Rusticelli E. *Improved Health System Performance Through Better Care Co-Ordination*. 2007, OECD Health Working Papers no. 30, OECD, Paris.

4 Bechel DL, Myers WA, Smith DG. Does patient-centered care pay off? *Joint Comm J Qual Im* 2002; 26: 400–9.

5 OECD. *Towards High-Performing Health Systems*. OECD Health Project. Organisation for Economic Co-operation and Development OECD Publications 2. 2004, Publication Services, Paris.

6 Muntlin A, Gunningberg L, Carlsson M. Patients' perceptions of quality care at an emergency department and identification of areas for quality improvement. *J Clin Nurs* 2006; 15: 1045–56.

7 Leeman J, Skelly AH, Burns D, Carlson J, Soward A. Tailoring a diabetes self-care intervention for use with older, rural African American women. *Diabetes Educ* 2008; 34: 310–17.

8 Florin J, Ehrenberg A, Ehnfors M. Patients' and nurses' perceptions of nursing problems in an acute care setting. *J Adv Nurs* 2005; 51: 140–9.

9 Suhonen R, Välimäki M, Leino-Kilpi H. Individualized care, quality of life and satisfaction with nursing care. *J Adv Nurs* 2005; 50: 283–92.

10 Attree M. Patients' and relatives' experiences and perspectives of 'good' and 'not so good' quality of care. *J Adv Nurs* 2001; 33: 456–66.

11 Basu A, Meltzer D. Value of information on preference heterogeneity and individualized care. *Med Decis Making* 2007; 27: 112–27.

12 Suhonen R, Berg A, Idvall E, Kalafati M, Katajisto J, Land L, Lemonidou C, Välimäki M, Leino-Kilpi H. Individualised care from the orthopaedic and trauma patients' perspective: an international comparative survey. *Int J Nurs Stud* 2008; 45: 1586–97.

13 Suhonen R, Berg A, Idvall E, Kalafati M, Katajisto J, Land L, Lemonidou C, Schmidt L, Välimäki M, Leino-Kilpi H. Adapting the Individualised Care Scale for cross-cultural comparison: an international study. *Scand J Caring Sci* 2010; 24: 392–403.

14 Suhonen R, Välimäki M, Katajisto J, Leino-Kilpi H. Provision of individualised care improves hospital patient outcomes: an explanatory model using LISREL. *Int J Nurs Stud* 2007; 44: 197–207.

15 Wolf DM, Lehman L, Quinlin R, Zullo T, Hoffman L. Effect of patient-centered care on patient satisfaction and quality of care. *J Nurs Care Qual* 2008; 23: 316–21.

16 Radwin L, Alster K. Individualized nursing care: an empirically generated definition. *Int Nurs Rev* 2002; 49: 54–63.

17 Suhonen R, Välimäki M, Leino-Kilpi H, Katajisto J. Testing the individualised care model. *Scand J Caring Sci* 2004; 18: 27–36.

18 Radwin LE. Cancer patients' demographic characteristics and ratings of patient-centered nursing care. *J Nurs Scholars* 2003; 35: 365–70.

19 Suhonen R, Välimäki M, Berg A, Idvall E, Kalafati M, Katajisto J, Land L, Lemonidou C, Schmidt L, Leino-Kilpi H. The impact of patient characteristics on orthopaedic and trauma patients' perceptions of individualised nursing care. *Int J Evid Based Healthc* 2010; 8: 259–67.

20 Linder-Pelz SU. Toward a theory of patient satisfaction. *Soc Sci Med* 1982; 16: 577–82.

21 Mahon PY. An analysis of the concept 'patient satisfaction' as it relates to contemporary nursing care. *J Adv Nurs* 1996; 24: 1241–8.

22 Donabedian A. *Explorations in Quality Assessment and Monitoring*, Vol. 1, Definition of Quality and Approaches to its Assessment. 1980, Health Administration Press, Ann Arbor, MI.

23 Pascoe G. Patient satisfaction in primary health care: a literature review and analysis. *Eval Program Plan* 1983; 6: 185–210.

24 O'Connell B, Young J, Twigg D. Patient satisfaction with nursing care: a measurement conundrum. *Int J Nurs Pract* 1999; 5: 72–77.

25 Green A, Davis S. Toward a predictive model of patient satisfaction with nurse practitioner care. *J Am Acad Nurse Practition* 2005; 17: 139–48.

26 Jenkinson C, Coulter A, Gyll R, Lindström P, Avner L, Höglund E. Measuring the experiences of health care for patients with musculoskeletal disorders (MSD): development of the Picker MSD questionnaire. *Scand J Caring Sci* 2002; 16: 329–33.

27 Bostick JE, Riggs CJ, Rantz MJ. Quality measurement in nursing. An update of where we are now. *J Nurs Care Qual* 2003; 18: 94–104.

28 Frich LM. Nursing interventions for patients with chronic conditions. *J Adv Nurs* 2003; 44: 137–53.

29 Suhonen R, Välimäki M, Leino-Kilpi H. A review of outcomes of individualised nursing interventions on adult patients. *J Clin Nurs* 2008; 17: 843–60.

30 Acaroğlu R, Şendir M, Kaya H, Soysal E. The effects of individualized nursing care on the patient satisfaction and quality of life. *İÜ FNHYO Hemşirelik Dergisi* 2007; 59: 61–67.

31 Dana SN, Wambach KA. Patient satisfaction with an early discharge home visit program. *J Obst Gynecol Neonatal Nurs* 2003; 32: 190–8.

32 Sidani S. Effects of patient-centered care on patient outcomes: an evaluation. *Res Theory Nurs Pract* 2008; 22: 24–37.

33 Weiland J, Schoettker PJ, Byczkowski T, Britto MT, Pandzik G, Kotagal UR. Individualized daily schedules for hospitalized adolescents with cystic fibrosis. *J Pediatr Health Care* 2003; 17: 284–9.

34 Hornsten A, Lundman B, Selstam EK, Sandstrom H. Patient satisfaction with diabetes care. *J Adv Nurs* 2005; 51: 609–17.

35 Suhonen R, Leino-Kilpi H, Välimäki M. Development and psychometric properties of the Individualised Care Scale. *J Eval Clin Pract* 2005; 11: 7–20.

36 Kalafati M, Lemonidou C, Dedousis P, Suhonen R. Hospitalized orthopedic patients' view on individualized nursing care. *Nurs Care Res* 2007; 18: 15–25 (Greek, English abstract).

37 Kim HS. Collaborative decision making in nursing practice: a theoretical framework. In *Advances in Nursing Theory Development* (Chinn P ed.), 1983, Aspen Systems, Rockville, MD, 271–83.

38 Kim HS. Patient–nurse collaboration in nursing care decision making: American studies. In *International Nursing Research Conference, Nursing Research: Global Health Perspectives*. 1991, American Nurses Association and Council of Nurse Researchers, Los Angeles, CA, p. 399.

39 Virta M, Vuorenheimo J, Leino-Kilpi H. *Surgical Patients' Satisfaction with Care*. 1994, Turun kaupungin terveydenhuollon julkaisuja no 4, Turku (Finnish).

40 Suhonen R, Leino-Kilpi H, Välimäki M, Kim HS. The Patient Satisfaction Scale – an empirical investigation into the Finnish adaptation. *J Eval Clin Pract* 2007; 13: 31–38.

41 Sidani S, Guruge S, Miranda J, Ford-Gilboe M, Varcoe C. Cultural adaptation and translation of measures: an integrated method. *Res Nurs Health* 2010; 33: 133–43.

42 Beauchamp TL, Childress JF. *Principles of Biomedical Ethics*, 6th edn. 2009, Oxford University Press, New York.

43 Norusis MJ. *SPSS 6.1 Guide to Data Analysis*. 1995, Prentice Hall, Englewood Cliffs, NJ.

44 Stevens J. *Applied Multivariate Statistics for the Social Sciences*, 3rd edn. 1996, Lawrence Erlbaum, Mahwah, NJ.

45 Johansson P, Oleni M, Fridlund B. Patient satisfaction with nursing care in the context of health care: a literature study. *Scand J Caring Sci* 2002; 16: 337–44.

46 Eldh AC, Ekman I, Ehnfors M. Conditions for patient participation and non-participation in health care. *Nurs Ethics* 2006; 13: 503–14.

47 Suhonen R, Välimäki M, Dassen T, Gasull M, Lemonidou C, Scott PA, Kaljonen A, Arndt M, Leino-Kilpi H. Patients' autonomy in surgical care: a comparison of nurses' perceptions in five European countries. *Int Nurs Rev* 2003; 50: 85–94.

48 Suhonen R, Välimäki M, Leino-Kilpi H. The driving and restraining forces that promote and impede the implementation of individualised nursing care: a literature review. *Int J Nurs Stud* 2009; 46: 1637–49.

49 Brown Wilson C. Developing community in care homes through a relationship-centred approach. *Health Soc Care Comm* 2009; 17: 177–86.

50 Plati C, Lemonidou C, Katostaras T, Mantas J, Lanara V. Nursing manpower development and strategic planning in Greece. *Image: J Nurs Scholars* 1998; 30: 329–33.

51 Merkouris A, Papathanassoglou E, Pistolas D, Papagiannaki V, Floros J, Lemonidou C. Staffing and organization of nursing care in cardiac intensive care units in Greece. *Eur J Cardiovascular Nurs* 2003; 2: 123–9.

52 Munro BH. *Statistical Methods for Health Care Research*, 3rd edn. 1997, Lippincott, Philadelphia.

53 Oflaz F, Vural H. The evaluation of nurses and nursing activities through the perceptions of inpatients. *Int Nurs Rev* 2010; 57: 232–9.

54 Vuori H. Patient satisfaction – an attribute or indicator of the quality of care? *Qual Rev Bull* 1987; 13: 106–7.