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Title: A retrospective, cross-sectional analysis of cardio- and cerebrovascular patients' satisfaction with information provided at discharge

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ABSTRACT

Background: Adequate patient knowledge and engagement with their condition and its management can reduce re-hospitalisations and improve outcomes after acute admission for circulatory system disease.

Aim: To evaluate the perceptions of cardio- or cerebrovascular patients of their satisfaction with discharge processes and to determine if this differs by demographic groups.

Methods: A sample of 536 eligible public hospital inpatients was extracted from a consumer experience surveillance system. Questions relating to the discharge process were analysed using descriptive statistics to compare patient satisfaction levels against demographic variables.

Results: Dissatisfaction rates were highest within the 'Written information provided' (37.8%) and 'Danger signals communicated' (34.7%) categories. Women and people aged ≥ 80 were more likely to express dissatisfaction.

Conclusion: Although respondents were largely satisfied, there are important differences in the characteristics of those that were dissatisfied. The communication of important discharge information to older people and women was less likely to meet their perceived needs.

Keywords: *patient satisfaction, discharge information, cardiovascular, cerebrovascular, hospital admission*

INTRODUCTION

Patients' knowledge and understanding of their condition and their subsequent engagement in self-care behaviours is a key component in achieving positive health outcomes. For those who are hospitalised, particularly with an index event, the communication of information throughout their stay and especially during discharge planning can be a key factor in promoting adequate self-care and ultimately reducing hospital readmissions (Jack et al. 2009, Hussein and Qayyum 2015). This is particularly true for people with circulatory system disease (CSD) conditions such as cardiovascular disease (CVD) (Ziaeeian and Fonarow 2016) and cerebrovascular disease (stroke) for which the condition is ongoing, and self-care activities such as symptom monitoring, lifestyle modification and the recognition of deterioration are necessary to maximise the likelihood for timely intervention and improved outcomes. Poor adherence to post-discharge regimes for either condition can lead to worsening of disease - including a subsequent cardio- or cerebro-vascular event - and re-hospitalisation (Jack et al. 2009, Feltner et al. 2014). The additional benefits of appropriate information provided to patients include increased patient involvement in decision-making and greater satisfaction with treatment choices (Ash et al. 2004, Oterhals et al. 2006, Krishnan et al. 2010, Pearson et al. 2016).

While it can be difficult to directly measure the efficacy of education and discharge planning for these patients, the continuing increase in readmission rates (Deloitte Access Economics 2011, Desai and Stevenson 2012) suggest that there are deficits in these processes. Repeat events are more likely to be fatal than the initial event, with 1 in 5 repeat events resulting in death compared to 1 in 10 for initial events

(Deloitte Access Economics 2011), adding impetus for the call to understand and improve these statistics. High quality discharge information is also becoming more important as acute care length of stays are being shortened and patients need to be clear about what to do if they have further symptoms (Kociol et al. 2012, Noman et al. 2013).

Nurses are uniquely placed to both deliver and/or coordinate the information and discharge needs of CSD patients. It is becoming increasingly apparent that a 'one size fits all' approach is not necessarily appropriate for patient cohorts from very different backgrounds, and an understanding of the characteristics that may affect patients' reception and processing of important information is crucial to the delivery of better care. In particular, the format in which the information is delivered is important to ensure that those with lower health literacy can comprehend and act upon this material (Berkman et al. 2011, Johnson 2014). Evidence based secondary prevention strategies that reduce repeat events and improve patient outcomes (Redfern and Chow 2013) should be the goal of discharge planning.

In Australia, the current discharge experience for many hospitalised cardiac patients involves the provision of standardised patient resources and maybe referral to a cardiac rehabilitation program (Government of South Australia 2011, Western Australia Department of Health 2014). These measures are designed to initiate and support self-care behaviours including lifestyle change to improve cardiac health and reduce the chance of a subsequent cardiac event. Stroke patients follow a similar transition pathway, but with increased emphasis on managing functional deficits (National Stroke Foundation 2010). However patient engagement in self-care behaviours may be influenced by their beliefs, motivation and also their perception

and understanding of the information provided to them, and these standard approaches may not always be effective (Riegel and Dickson 2008, Clark et al. 2009).

Internationally, trials involving specific educational interventions have been effective in reducing risk factors and improving medication compliance in cardiac and stroke patients (Smaha and American Heart Association 2004, Hope et al. 2014), and improving self-care behaviours and reducing hospitalisations and mortality in heart failure patients (Koelling et al. 2005). There is clearly potential to improve the communication of important information to CSD patients, but in order to do this nurses first need to understand why and how patient experience and capacity may differ. These experiences can potentially be influenced by socio-demographic differences.

While the insufficiency of many standard discharge regimes and the associated rates of subsequent mortality and morbidity have been well documented (Page et al. 2014), less is understood about how patients and carers themselves perceive the communication of information to them in preparation for discharge, and whether they view these interactions as meeting their needs. This information is important for all health professionals to understand as it offers some insight into why standard discharge regimes are inappropriate for some patients. If nurses are to adjust their practice, and if different models of care are to be developed, it is important for us to gain an understanding of how CSD patients perceive the current information that they receive. It is possible to gain an insight into the factors which influence patient engagement with relevant discharge information through the analysis of patient

satisfaction survey data, where the correlation between particular responses and socio-demographic variables can be explored.

Patient satisfaction or patient experience surveys are widely used to monitor hospital performance and inform quality improvement planning (Al-Abri and Al-Balushi 2014). While there is no clear definition around the concept of 'patient satisfaction' (Jenkinson et al. 2002a, Al-Abri and Al-Balushi 2014), it can be broadly understood to mean a positive reaction or positive response to a specific element of the patient experience (Sitzia and Wood 1997). Many surveys include some questions regarding communication of information, especially around the discharge process. These questions provide an opportunity for patients to reflect on the information that was provided to them at the time, and their answers are likely to reflect their perception of the adequacy of this to support their transition into a home environment. Those who express dissatisfaction with these aspects of their experience are likely to feel that they don't have the knowledge or resources to manage their condition effectively, and it is important for nurses to understand how they could positively influence this transition to self-care.

Previous research has identified that patient satisfaction with the overall hospital experience is correlated with demographic factors such as age, gender, education and socioeconomic status; however results have been conflicting between different studies and are likely mediated by the country in which the study is undertaken, the type of hospital, and different cultural expectations (Al-Abri and Al-Balushi 2014). Analysis of the responses of a specific patient cohort within a defined hospital system will provide some useful insights into the different experiences of patients

from various backgrounds, and enable nurses to further adapt their practice to address these considerations.

AIM

This study aimed to investigate differences in satisfaction levels of recent CSD inpatients between different socio-demographic groups. Identifying potential differences among population groups will help to inform the development of innovative discharge resources to trial an alternative model of care.

DATA AND METHODS

Design

A retrospective, cross-sectional study was conducted to evaluate differences in responses between survey participants from different demographic groups. This study was approved by the relevant Human Research Ethics Committee (HREC-15-SAH-59) in May 2015.

Data sources

Data were collected as part of the South Australian Consumer Experience Surveillance System (SACESS) from November 2010 to November 2014. The SACESS survey comprises a random sample of eligible public hospital inpatients recently discharged (~2 months before interview) from public hospitals throughout South Australia. All respondents were aged 16 years or over, and were interviewed via telephone by trained personnel. SACESS questions are designed to measure patient experience based on a number of consumer experience domains including Involvement in Decision Making and Discharge Planning. These domains are based on national and international literature and draw on work developed by the Picker

Institute Europe's 'Principles of Patient-centered Care' (Jenkinson et al. 2002a, Jenkinson et al. 2002b). The full methodology behind SACESS is reported elsewhere (Grant et al. 2015).

Data were supplied for respondents whose admission was due to either cerebrovascular or cardiovascular conditions (Table 1). These related conditions were chosen due to the significant lifestyle and self-care challenges which must be managed after discharge. The two diagnoses were not separated by the data custodian due to the necessity to maintain a large enough sample size for meaningful analysis.

A total of 8 demographic variables were supplied along with 5 patient satisfaction variables relating to the discharge experience, plus an overall satisfaction rating (Table 2). The selected demographic variables are known to be associated with health literacy and the potential to understand and act upon information given (Institute of Medicine (US) Roundtable on Health Literacy 2009, Protheroe et al. 2017). All variables have been included in the analysis to explore the strength of the relationships between them. This is the first use of this data set for research purposes.

Analysis

Patient response options were not consistent for all questions, with variation in both the number of choices and the wording of the responses. The data were therefore recoded to represent either satisfaction (positive response) or dissatisfaction (negative response) with each aspect of care. Patients who did not answer the question or indicated that the question was not relevant were excluded from analysis of that question, but 'Don't know' responses were coded as dissatisfied. Any positive

response, including 'Yes, to some extent' was coded as satisfied. All demographic characteristics were ultimately collapsed into dichotomous groups to provide meaningful analysis variables.

The data were weighted according to the age and sex profile of the eligible patients and the hospital of admission (Grant et al. 2015). The weighted data were analysed using IBM SPSS Statistics version 22. All variables were treated as categorical, and cross tabulation with chi square testing for significance was conducted for each patient satisfaction question, with the *p* value for statistical significance set at <0.05.

RESULTS

Participants

In total there were 536 cardiovascular and cerebrovascular patients (60.6% male, median age 74 ±12 years, 65.5% Australian born) who participated in the SACCESS survey from 2010-2014. Nearly one third (29.3%) were aged 80 years or older, 70.7% did not have any post school education and 32.8% reported living alone. The characteristics of the participants are reported in Table 3.

Levels of dissatisfaction

Satisfaction with the care received overall was uniformly high (97.4%) and did not vary significantly between demographic groups. However the levels of satisfaction with aspects of the discharge process were lower, ranging from 88.2% for 'Discharge services arranged' down to 62.2% for 'Written information provided'. While the majority of respondents were satisfied with their experiences, there were some important differences in the socio-demographic characteristics of those who were dissatisfied (Table 4).

Women were more likely to be dissatisfied than men in all aspects, and this difference was statistically significant for 'Written information provided' ($p=0.024$) and 'Danger signals communicated' ($p=0.011$). Respondents aged 80 and over were also more likely to be dissatisfied than younger respondents in all aspects, and were significantly more likely to be dissatisfied with 'Involved in discharge' ($p<0.001$), 'Discharge services arranged' ($p=0.026$), 'Written information provided' ($p=0.004$) and 'Emergency contact details provided' ($p=0.007$). Similarly, people who lived alone were more likely to report dissatisfaction with all aspects apart from 'Involved in discharge'; statistically significant for 'Discharge services arranged' ($p=0.008$) and 'Danger signals communicated' ($p=0.015$).

Respondents who reported earning more than \$40,000 per year were significantly more likely to be dissatisfied with 'Involved in discharge' ($p=0.020$), however respondents who earned \$40,000 per year or less were significantly more likely to be dissatisfied with 'Contact information given' ($p=0.008$).

Neither country of birth nor education was strongly associated with patient dissatisfaction in this data set (Australian born: 11.1% - 36.5% dissatisfied, Other: 12.8% - 40.0% dissatisfied; No post-school education: 13.4% - 38.6% dissatisfied, Some post-school education: <5.0% - 32.6% dissatisfied), although there was a non-significant tendency for those not born in Australia and those with no post-school education to be more dissatisfied.

DISCUSSION

This study aimed to evaluate the satisfaction of patients admitted to public hospitals with circulatory system disease with the discharge information provided to them, and to determine if this differed by demographic groups. Any observed differences would

highlight a population group who may not be receiving adequate or understandable discharge preparation and instruction to facilitate appropriate self-care at home, and therefore might be at risk of poor outcomes.

There were high levels of satisfaction with both the overall care received in hospital and the majority of the communication and information domains assessed. However this analysis of the characteristics of those who were dissatisfied with these aspects of their experience has highlighted some socio-demographic groups that might benefit from consideration of their particular situation, and might be better served by specially targeted resources to support their long term condition management. The level of dissatisfaction related to discharge planning identified in this analysis is particularly important to note for a system that is focused on reducing readmission rates, and further research to determine the most appropriate resources for different situations and the role of nurses in facilitating the delivery and comprehension of this important information is needed to achieve best practice in this area.

Overall dissatisfaction

Dissatisfaction was highest for 'Written information provided' (37.8%), indicating that over 1/3 of respondents did not receive (or do not remember receiving) printed information about what they should and should not do after leaving hospital. This is particularly concerning in a cohort of CSD patients, for whom post-discharge management is vitally important. The reasons behind these negative responses could be as simple as a lack of resources for dissemination, or as complex as patients receiving the information but not keeping it and/or not engaging with it and therefore reporting that none was received. Further exploration of this domain will be

necessary to establish why the discharge process is not operating as anticipated and if the impact of age, as suggested in the present study, is a key factor in this result.

Dissatisfaction was also high for 'Danger signals communicated' (34.7%), indicating that respondents were not aware of the signs and symptoms to look out for which could indicate a deterioration in their condition. Once again the reasons behind this may be complex, and could be related to both hospital factors and patient demographic factors, particularly age and the level of both perceived and actual comprehension.

The dissatisfaction rates for the remaining questions are lower, but still markedly higher than the dissatisfaction with overall care, indicating that there are significant gaps in the provision of discharge material to CSD patients in an acceptable and understandable format. The demographic differences discussed below provide insight into how these factors can potentially impact upon the patient's reception of and engagement with important discharge information.

Age, gender and living arrangements

Previous research has identified that women and older persons tend to have initially poorer knowledge about cardiovascular related events than men and younger people (Albarqouni et al. 2016), and that women may actually receive less aggressive therapy than men (Pagidipati and Peterson 2016, Worrall-Carter et al. 2016). This knowledge and treatment deficit may not be adequately accounted for in the design of standardised discharge information, and may help to explain the higher levels of dissatisfaction observed among women and older people in this study. Inadequate health literacy and unrecognized cognitive impairment in these populations may also contribute to these statistics (Chugh et al. 2009). Nurses, in particular, are well-

positioned to identify these deficits and to implement compensatory strategies such as spending more time communicating discharge instructions and making sure to involve family members/carers.

Additionally, people who live alone have been found to exhibit poor self-care behaviours, particularly if they are also socially isolated (Dunbar et al. 2008, Nakane et al. 2015). Within this data set, living alone is significantly associated with both being female ($p < 0.001$) and aged ≥ 80 years ($p < 0.001$). Patients belonging to any of these demographic groups – and particularly if they belong to more than one - may need extra support and targeted resources to maximise their health and well-being following a cardiac or stroke event.

Education and income

While there was a lack of any strong associations related to the level of education in this analysis, it may be that the two categories used do not capture the variation in responses that might otherwise be expected. Previous studies have shown that patients with higher education and literacy levels are less likely to report high levels of satisfaction with the hospital experience in general (Dayasiri and Lekamge 2010), despite the fact that they tend to receive more information and have a better communication experience (Willems et al. 2005). It is possible that this group actually have higher expectations of treatment and communication that can adversely impact their satisfaction levels, despite a high standard of care. More flexibility in information delivery and options to seek additional information from reputable sources might help to improve the satisfaction levels of these patients, and ultimately their self-care and monitoring behaviours after discharge.

It has also been noted that patients with lower literacy levels may have the same desire to be engaged in the decision-making process, however they tend to ask fewer questions and experience less actual participation than those with higher literacy levels (Aboumatar et al. 2013); thus they may be more likely to express dissatisfaction. Person-centred care initiatives have been shown to significantly improve outcomes for low-education patients post acute coronary syndrome (Fors et al. 2016), therefore it is likely that communication strategies that are adaptable for people with different literacy levels would help to address this gap in participation and knowledge. In addition, the impact of deficits in health literacy compared to general literacy need to be considered.

Using income as a variable in a cohort of predominantly older patients can be problematic, as income in retirement does not necessarily reflect socio-economic resources. In this sample, the satisfaction results were mixed although there was a general tendency for the lowest income group to be more dissatisfied. Conversely, previous research has shown that patients from lower socio-economic groups are more likely to be satisfied with the service they received (Dayasiri and Lekamge 2010), although at least one study reported that low income patients are less likely to be satisfied with care coverage and delivery (Haviland et al. 2005). These disparate results probably reflect the unreliability of income as a variable in this type of analysis, and possibly the way the income levels have been measured in different studies.

It has also been noted that physicians communicate differently to their patients based on the patient's income and education level (Verlinde et al. 2012).

Consequently, unbiased resource materials may be even more important to adequately address knowledge needs for all patients, regardless of socioeconomic

status, and this is something that nurses should be aware of and incorporate into their communication with all patients.

Ethnicity

While country of birth as described in this dataset was not consistently associated with increased dissatisfaction, it is possible that a more sensitive analysis of a larger dataset might reveal some patterns. It is likely that there is an English literacy component to the reported levels of dissatisfaction, but this is impossible to confirm from the current data where language is not recorded. It should also be noted that patients with limited English proficiency were unable to participate in the SACESS survey during the data collection period.

Other studies have shown marked differences in patient satisfaction with communication and information provision in the health care setting dependent on race and ethnicity (Ayanian et al. 2005, Pinder et al. 2016, Trenchard et al. 2016), however these results may not be readily generalizable between different countries with different socio-cultural population structures.

Summary

In this study, higher levels of dissatisfaction with communication and information around the discharge process for patients hospitalised with CSD were observed particularly in the areas of 'Written information provided' and 'Danger signals communicated'. Women, older people and those living alone were most likely to report dissatisfaction.

It is clear that there are differences in the way that patients perceive and respond to health care information and in their overall satisfaction levels with hospital experiences and communication strategies. There may be different expectations of

the system to start with, and outcomes for CSD patients in particular may be dependent on how well these differences in initial knowledge and expectations are addressed throughout the admission and in discharge planning.

Limitations

As an observational analysis from an administrative data, set these results are not immediately generalizable and further research focussing on the link between patient satisfaction and defined outcomes is needed to support these findings. Further, these outcomes could not be imputed to other countries, particularly those with different health care systems, social norms or ethnic structure.

We cannot distinguish between different patient diagnoses in our sample, nor do we know if the most recent admission was an index or subsequent CSD admission. Pre-existing familiarity with their condition may affect responses, and it is also possible that people with different diagnoses experience different levels of care and communication.

The collapse of both the demographic categories and the scaled responses into dichotomous variables may mask some more subtle patterns in patient responses.

Conclusions and Recommendations

People who leave hospital after a major event such as a heart attack or stroke are faced with the need for continuing management of a serious medical condition. This may include lifestyle modification, medication adherence and ongoing monitoring of aspects of their condition. Notwithstanding the need for adequate post-discharge support and rehabilitation services, communication about their condition throughout their admission and especially in preparation for discharge is vitally important to

prepare patients and their carers to maintain and improve their health and avoid the need for rehospitalisation.

Although respondents were largely satisfied with their involvement in and information given to them to support their discharge, there are some important differences in the socio-demographic characteristics of those that are dissatisfied. These results demonstrate the need for improved discharge processes, incorporating more flexible strategies and resources that are readily adaptable to the specific needs of individual patients. While nurses should routinely provide appropriate care and communication to patients from many diverse socio-demographic backgrounds, this study highlights the potential impact that individualized attention to discharge planning and communication could have for the longer term health and well-being of CSD patients.

Key points:

- Adequate patient knowledge and engagement with their condition and its management can reduce re-hospitalisation and improve health outcomes after an acute admission for circulatory system disease.
- Discharge planning and information sharing is a key source of knowledge for patients in managing ongoing medical issues.
- Patient satisfaction with discharge experiences is low compared to overall satisfaction with the hospital admission.
- Patients were most dissatisfied with the provision of written information, and communication about danger signals to watch out for after discharge.
- Women and older people are more likely to be dissatisfied.

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Table 1 ICD10 separation codes used to identify patient cohort

Condition	ICD10 codes included
Trans-ischemic attack	G45.9
Stroke	I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9 I62.9 I63.0, I63.1, I63.2, I63.3, I63.4, I63.5, I63.6, I63.8, I63.9 I64
Angina and myocardial infarction	I20.0 I21.0, I21.1, I21.2, I21.3, I21.4, I21.9
Heart failure	I50.0, I50.1, I50.9, I51.3

Abbreviations:

ICD International Statistical Classification of Diseases and Related Health Problems

Table 2 Patient satisfaction variables

Variable supplied	Question asked	Valid responses (n=536)
Overall care ^a	Overall how would you rate the care you received in hospital?	320
Involved in discharge	Did you feel you were involved in decisions about your discharge from hospital?	436
Discharge services arranged ^a	Thinking about when you left hospital, were adequate arrangements made by the hospital for any services you needed?	213
Written information provided ^a	Before you left hospital were you given any written information or printed information about what you should or should not do after leaving hospital?	312
Danger signals communicated ^a	Did a member of staff tell you about any danger signs you should watch for after you went home?	260
Ongoing care information to family ^a	Did the doctors or nurses give your family or someone close to you all the information they needed to help care for you?	232
Emergency contact details provided ^a	Did the hospital staff tell you who to contact if you were worried about your condition or treatment after you left hospital?	312

^aData item collected from July 2012

Table 3 Characteristics of participants

	<i>Unweighted</i>		<i>Weighted</i>	
	<i>N=536</i>		<i>N=540</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Gender				
Male	325	60.6	329	60.9
Female	211	39.4	211	39.1
Age (years)				
60 or less	101	18.8	96	17.7
60 - 69	137	25.6	120	22.2
70 - 79	140	26.1	145	26.9
80 or more	157	29.3	178	32.9
Not stated	1	0.2	1	0.3
Education level				
No post-school education	379	70.7	379	70.2
TAFE, trade certificate or diploma	104	19.4	109	20.1
Bachelor degree or higher	44	8.2	43	8.0
Other/Not stated	9	1.7	9	1.7
Annual gross household income (AUD)				
Up to \$20,000	145	27.1	150	27.7
\$20,001 - \$40,000	156	29.1	158	29.3
Over \$40,000	77	14.4	71	13.1
Not stated	158	29.5	162	29.9
Country of birth				
Australia	351	65.5	348	64.4
UK/Ireland	102	19.0	107	19.8
Other	83	15.5	85	15.8
Living arrangements				
Lives alone	176	32.8	181	33.5
Lives with others	359	67.0	359	66.4
Not stated	1	0.2	1	0.2

Abbreviations:

TAFE Technical and Further Education
AUD Australian dollars
UK United Kingdom

Table 4 Patients reporting dissatisfaction with aspects of communication and information during the discharge process

		Involved in discharge	Discharge services arranged	Written information provided	Danger signals communicated	Ongoing care information to family	Emergency contact details provided
		<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>	<i>n (%)</i>
Gender	Male	36 (13.5)	14 (10.1)	69 (33.3)	52 (29.5)	28 (18.2)	50 (24.2)
	Female	25 (14.4)	12 (16.2)	50 (46.3)*	40 (45.5)*	20 (24.7)	30 (27.8)
Age (years)	<80	27 (9.1)	12 (8.3)	65 (32.0)	56 (31.6)	29 (20.1)	41 (20.3)
	≥80	33 (23.1) ***	13 (18.8)*	54 (48.6)**	36 (40.9)	19 (21.1)	38 (34.2)*
Country of birth	Australia	38 (13.7)	15 (11.1)	73 (36.5)	61 (35.9)	33 (21.7)	48 (24.0)
	Other	23 (14.0)	10 (12.8)	46 (40.0)	12 (29.3)	15 (18.1)	32 (27.8)
Education	No post-school education	41 (13.4)	20 (13.6)	85 (38.6)	65 (36.3)	32 (20.0)	55 (25.1)
	Some post-school education	18 (14.3)	<10 (<5.0) ^a	29 (32.6)	24 (29.6)	14 (20.3)	13 (20.3)
Income	≤\$40,000	29 (11.2)	15 (12.5)	68 (41.5)	54 (39.1)	22 (17.6)	47(28.7)
	>\$40,000	13 (22.8)*	<10 (<5.0) ^a	10 (25.6)	11 (29.7)	<10 (<20.0) ^a	<10 (<10.0) ^a
Living arrangements	Lives alone	21 (13.6)	14 (20.3)*	45 (43.3)	40 (44.4)*	20 (27.0)	31 (30.1)
	Lives with others	40 (14.0)	11 (7.7)	73 (34.8)	51 (29.5)	27 (17.0)	48 (23.0)

^aCell confidentialized

*** $P < 0.001$

** $P < 0.005$

* $P < 0.05$

Figure 1 Overall dissatisfaction with specific aspects of care



