



An exploration of how domains of quality of care relate to overall care experience

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Title: An exploration of how domains of quality of care relate to overall care experience

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ABSTRACT

Purpose: To determine the relative influence of the different domains of healthcare quality from the Care Experience Feedback Improvement Tool and identify key predictors of healthcare quality from the patients' perspective. Measurement is necessary to determine whether quality of healthcare is improving. The Care Experience Feedback Improvement Tool was developed as a brief measure of patient experience. It is important to determine the relative influence of the different domains of healthcare quality to further clarify how the Care Experience Feedback Improvement Tool can be used and identify key predictors of healthcare quality from the patients' perspective.

Methods: 802 people with a healthcare experience during the previous 12 months were telephoned to complete the Care Experience Feedback Improvement Tool questions and an additional eleven-point global rating of patient experience. To estimate the influence of different domains of healthcare quality on patient overall ratings of quality of healthcare experience, we regressed the overall rating of patient experience with each component of quality (safety, effectiveness, timely, caring, enables system navigation and person-centred).

Findings: We found that all of the domains of the Care Experience Feedback Improvement Tool, influenced patient experience ratings of healthcare quality. Specifically, results show the degree of influence, the impact of demographics and how high scores for overall rating of patient experience can be predicted.

Originality: Our findings suggest that all of the Care Experience Feedback Improvement Tool domains are important in terms of capturing the wholeness of the patient experience of healthcare quality to direct local quality improvement.

Background

Despite global efforts to improve and assure the quality of health services, quality of care remains variable (Public Health England, 2016; Jha et al, 2005). That is, people do not receive high quality care every time (Zhan and Miller, 2003). It is argued that measuring and acting on issues of quality raised by patients can be a partial solution to this persistent challenge (Rathert et al, 2011). Measuring and acting on issues of quality raised by patients is now seen as an essential component of healthcare quality indicators globally (Health Foundation, 2013; Doyle et al, 2013; Aiken et al, 2012; Garratt, 2008). Patients, through their unique experiences, can offer insights into healthcare quality, which would be unseen from other perspectives such as the way a treatment, process or interaction has made them feel and subsequently, behave. Due to the complexity of healthcare systems, with many care transitions and multiple providers, patients are often the only people to view the quality of care holistically (Rathert et al, 2011).

Measuring the patient perspective is complex for two main reasons. Firstly, what constitutes 'quality of care' and the 'patient perspective' are difficult to conceptualise and measure (Coulter et al, 2009). Secondly, measurement tools to be used within healthcare contexts need to be brief to ensure their utility at the frontline of care. Historically, the patient perspective was measured using patient satisfaction surveys (Locker and Dunt, 1978). Patient satisfaction is "implicitly or explicitly defined as an evaluation based on the fulfilment of expectations" (Williams, 1994, p511). These expectations are influenced by patient's experiences of healthcare including their own health status, whether they are currently receiving healthcare and if so, their dependency on healthcare providers (Coulter et al, 2009). Williams et al (1998) conclude that patient satisfaction may not necessarily correlate with a positive healthcare experience but may indeed reflect attitudes that health care staff are "doing all they can" or "it's not really their job to do..."(p1358). Patient satisfaction surveys tend to lack sensitivity, often elicit very positive ratings and often do not ask patients

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3 about the value of their treatment, failing to discriminate effectively between practice that is
4 good and bad (Coulter and Fitzpatrick, 2000). Methodological issues, such as high ceiling
5 effects (responses clustered at high end of response options), have also emerged which can
6 limit analysis and interpretation (Moret et al, 2007).
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13 As an alternative to satisfaction, there is evidence to suggest that patient reports of their
14 'experiences' of healthcare more accurately represent accounts of healthcare quality (Health
15 Foundation, 2013; Luxford, 2012; Salisbury et al, 2010). Also, asking patients questions
16 relating to their experience has been deemed more useful for directing improvement efforts,
17 as well as monitoring performance of healthcare quality (Jenkinson et al, 2002). Measuring
18 patient experience requires questions to be designed around what and/or how often care
19 processes or behaviours occurred, as opposed to patient ratings of care (Dr Foster Ltd,
20 2010). For example, instead of asking patients how satisfied they are with their medication,
21 a patient experience tool might ask the frequency of receiving the right medicine at the right
22 time. Rather than asking patients to make a judgement about aspects of their care, patient
23 experience questions are designed to establish factual accounts of whether or how often
24 care processes occurred. Therefore, quantifying the patient perspective should aim to
25 measure patient 'experience' as opposed to 'satisfaction'.
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42 There is a plurality of perspectives of what constitutes healthcare quality. That is definitions
43 of quality differ dependent upon the stakeholder (patient, clinician, manager) and the context
44 (Donabedian, 1988). To ensure measures of patient experience of healthcare quality are
45 valid (measuring what they intend to) they need to capture a wide array of domains. Whilst
46 interpretation of domains remain context specific, there is some consensus of identification
47 of what constitutes a healthcare quality domain. For example, the widely accepted domains
48 proposed by the Institute of Medicine (IOM), namely; care which is Safe, Timely, Efficient,
49 Effective, Equitable and Patient-centred, referred to as 'STEEEP' (Institute of Medicine,
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3 2001). Taking 'timely' as an example; in an outpatient setting, timely might be the length of
4 time a patient has to wait for an appointment, whereas in a hospital setting, it may be
5 interpreted as the length of the time the patient has waited for a test.
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11 We have previously conducted a systematic review which critiqued existing tools to measure
12 patient experience of hospital care (Beattie et al 2015). This review highlighted 11
13 instruments. Six of these, including the Picker Institute Survey (Picker Institute, 2012) and
14 the Scottish inpatient Patient Experience Survey (Scottish Government, 2012), had
15 extensive psychometric testing and were conducted annually to benchmark health providers
16 and enable year-on-year comparisons. Whilst data from these surveys are useful to
17 determine variations between health providers, it is not timely nor specific enough to capture
18 patient experience of healthcare quality at the healthcare interface to direct local quality
19 improvement (QI) efforts. For example, survey data may highlight a poor score in waiting
20 time, but the data is usually only available at the level of providers (health care organisation)
21 and, sometimes, facility (hospital, healthcare centre). Being unable to locate the problem to
22 a local clinical team makes it impossible to target areas for improvement. Also, the stringent
23 criteria for data sampling, collection and analysis required for National surveys often means
24 that the data is not available to the healthcare team for up to a year after the patient
25 experience.
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44 The other five instruments were designed for quality improvement purposes and did
45 demonstrate some degree of reliability and validity. There were however issues with their
46 transferability. For example, the Patient Experiences with Inpatient Care (I-PAHC) (Webster
47 et al, 2007) and the Patient Perception of Quality surveys (Rao et al, 2006) were developed
48 in non-western, low-income healthcare settings and included items such as medicine
49 availability. They were also lengthy, which limits their use by hard-pressed clinical teams as
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3 an ongoing method of measurement for improvement within clinical areas (Wilde et al, 1994;
4 Larsson and Larsson, 2002; Pettersen et al 2004, Webster et al, 2011; Rao et al, 2006).
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10 The Care Experience Feedback Improvement Tool (CEFIT) was developed to fill this
11 existing gap - a brief and timely measure of patient experience of healthcare quality suitable
12 for use at the clinical coalface. Full details of the CEFIT development are available at
13 Beattie et al (2016) Briefly, a model was devised from the literature and patients
14 experience. The model suggested quality of care as being composed of six domains,
15 namely care which is; safe, effective, timely, caring, enables system navigation and is
16 enacted in a person-centred way (Beattie et al, 2016; Beattie et al 2012). A person-centred
17 statement was devised for each domain, as person-centred care was found to be
18 foundational to all other domains. There are difficulties ensuring that a short tool such as
19 CEFIT can sufficiently measure the complexity of the patient experience of hospital quality of
20 care (validity), whilst ensuring the brevity of CEFIT to enable ongoing measurement of
21 improvement. However, our previous paper (Beattie et al 2016) found that the CEFIT
22 structure is measuring the patient experience of quality of care sufficiently and is doing so in
23 a consistent manner. By testing internal consistency reliability and interitem correlations, we
24 have confirmed the need for five components which are clearly inter-related, yet unique
25 enough to require their own component. Also a Cronbachs alpha of 0.78 provides
26 reassurance of the reliability of the instrument and confirms that sufficiency of the tool.
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28 CEFIT was originally intended for use in a hospital context, but the domains are generic to
29 all healthcare contexts. Initial psychometric testing has found CEFIT to be structurally valid
30 and internally consistent (Beattie et al, 2016). A valid, reliable and brief measure of patient
31 experience is likely to more accurately reflect the quality of healthcare experienced locally by
32 patients, as opposed to pooled data lacking discrimination of location. Data from such a
33 brief instrument as CEFIT would be more amenable to providing a measure of ongoing
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3 improvement efforts in comparison to lengthy national surveys which do little to reveal local
4 trends over time.
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10 It is important to determine the relative influence of the different domains of healthcare
11 quality to establish an effective way to score CEFIT and identify key predictors of healthcare
12 quality from the patients' perspective. Establishing the importance of domains of healthcare
13 quality could inform what and how the patient experience of healthcare quality is measured.
14 For example, when scoring patient experience using quantitative tools, domains of quality
15 which are more important to patients might need to be weighted accordingly. Identifying key
16 predictors of patient experience of quality of care can help direct resource for quality
17 improvement. It is also important to establish whether or not an overall rating question is
18 helpful to measure the patient experience.
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32 Methods

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34 The aim of this study was to explore the relationships that exist between individual quality
35 indicators and overall care experience and identify key predictors of healthcare quality from
36 the patients' perspective. The research questions to be addressed were:
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- 41 1. What domains of quality are the main predictors of how an individual rates patient
42 experience?
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- 45 2. Which domains of quality (if any) are significant in predicting a high/low rating for patient
46 experience?
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- 49 3. Do patients tend to score the domains of quality similarly and how independent are
50 they?
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Design

CEFIT was embedded within an existing population survey, namely the 2014 Queensland Social Survey (QSS) (Queensland Survey, 2014). This survey of households in the state of Queensland enables researchers to explore a wide range of research topics in a structured research framework. Whilst there are limitations to embedding CEFIT within a population survey (discussed further under limitations) it enabled a sufficient method to ensure an adequate sample to perform regression analysis. The target population for this telephone survey was persons 18 years or older living in Queensland, Australia. The sample was drawn using a computer program to select, with replacement, a simple random sample of telephone numbers. Within each household, one eligible person was selected based on age, gender and availability of the respondent for interview. The survey estimates of sampling error for the total sample of 1,223 showed this was accurate within ± 2.8 percentage points (at the 95% CI). The most recent Australian Bureau of statistics (ABS) census data was used for comparison with the 2014 QSS.

Measures

The 2014 QSS contained questions regarding a number of socio-demographic characteristics including age, gender, BMI, address, level of education and income. We added the five item CEFIT survey, with both a preceding screening question and overall rating question (Appendix 1). The preceding screening question identified participants who had experienced a recent (within 12 months) healthcare experience. The overall rating question consisted of an additional eleven-point global rating of patient experience, with responses ranging from zero to ten, where ten is the best experience possible and zero is the worst.

Data analysis

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3 Data analysis was performed using Stata Intercooled v13. Statistical significance was
4 represented by a P value of <0.05. The analysis of the data consisted of the following:
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- 7 • Data cleansing was initially performed such that any responses of “don’t know/unsure”
8 and “no response” were removed from the data set prior to analysis.
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- 10 • As all variables being analysed are categorical, ordinal logistic regression was conducted
11 to establish the presence of statistically significant influence.
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- 13 • Interactions between quality indicators were explored using regression analysis and a
14 review of variance inflation factors was conducted to ensure a reasonable level of
15 independence between variables.
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24 The aim of the analysis was to determine the nature of the relationship between the five
25 domains of quality in the CEFIT measure and overall care experience. In order to address
26 this, three sub-analyses were conducted: analysis of the relationship between each quality
27 domain and overall care experience; analysis of the key predictors of a lower half / upper
28 half score for overall care experience; and analysis of the level of independence between
29 each quality domain. The corresponding results are presented below.
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39 **Results**

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42 The overall Queensland survey response rate for the QSS was 35.9% with 1223 interviews.
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44 Of the 802 participants eligible to answer the CEFIT questions (i.e. those that reported a
45 healthcare experience within the preceding 12 months) there was a 100% response rate.
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48 The demographic details of these participants is shown in table 1.
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Independence of the quality domains

Prior to conducting analysis of the influence of each predictor (explanatory) variable on the dependent variable, a regression analysis was conducted to assess levels of multicollinearity between the variables. Regression analysis between each variable was performed and the variation inflation factors (VIFs) assessed. The variation inflation factors for each independent variable are presented in Table 2: Correlation between independent variables. Given variance inflation factors (VIF) ≤ 2.47 indicating that standard errors are larger by a factor of at most 2.47, we can conclude that the level of multicollinearity between variables is acceptable and there are not high levels of association between the independent variables. This finding allows us to be confident in assessing each individual predictor variable's influence on the dependent variable, knowing that the variable is not overly influenced by the presence of the other predictor variables. It allows us to clearly identify the level of influence each domain variable has on overall care experience.

Relationship between quality domains and overall care experience

In this unadjusted model, the overall care experience was the dependent variable (DV) and the 5 quality indicators the predictor (explanatory) variables (see Table 3: Ordinal logistical regression on overall experience). Each predictor variable was individually regressed on overall care experience. Findings show that all quality indicators were significantly associated with a positive care experience. In other words, expressing some degree of positive experience of each of the quality indicators is associated with an increase in odds of a comparatively positive rating for overall care experience.

In the adjusted model all predictor variables were included in the model (see Table 3: Ordinal logistical regression on overall experience). Each predictor variable was individually regressed on overall care experience while all other quality indicators were controlled (held

constant). In this model the results show only *timely care, care that met personal needs* and *able to get the care I needed* remained significant predictors of overall care experience. In other words, each of these quality indicators were independently associated with overall quality experience when all other quality indicators were controlled. Expressing some degree of positive experience of each of these 3 quality indicators is associated with an increase in the odds of a positive rating for overall care experience.

Impact of other factors

Analysis was conducted to assess whether someone's social-demographic status influenced their response to the questions asked. The social-demographic data collected comprised of age, gender, BMI, address, level of education and income. Of these, only age showed some statistical significance as a predictor of the responses given to the quality domain questions. The age variable was dichotomised to ≤ 50 (0) versus > 50 (1). The results are presented in Table 4: Ordinal logistical regression on each quality indicator, predictor variable age.

The predictor variable age was regressed on each quality indicator. As the results show, age is significantly associated with all quality indicators. In other words, over 50s are associated with increased odds of higher scores for each quality indicator. Analysis was also conducted to identify if age was a predictor of overall care, however no significant results were found.

Predictors of lower/upper half score for overall care experience

The dependent variable overall care experience was dichotomised to 0-5 (0) 6-10 (1) to represent a lower and upper score for overall care experience respectively. In the adjusted model (Table 5: Ordinal logistical regression on overall care experience) all predictor variables were included in the model. Each predictor variable was individually regressed on overall care experience while all other quality indicators were controlled (held constant). In this model the results show only *receiving the care that met personal needs* and *getting the*

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3 *care you needed* were regarded as significant predictors of high scores for overall care
4 experience. In other words, these two quality indicators were independently associated with
5 overall quality experience when all other quality indicators were controlled. Expressing some
6 degree of positive experience of each of these 2 quality indicators is associated with an
7 increase in the odds of a high score for overall care experience.
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18 **Discussion**

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20 This study examined the relative influence of the CEFIT domains of healthcare quality on
21 patients' experience of quality of care. Our study found that all of the domains of CEFIT,
22 namely; safe, effective, timely, caring, system navigation and person-centred were predictors
23 of how patients rated their experience of healthcare quality. There was some variation in the
24 degree of influence of the domains on participants overall ratings of healthcare experience.
25 For example, in order of the significance, when all quality indicators were assessed together,
26 *receiving timely care (time)*, *care that met my personal needs (effective)* and *getting the care*
27 *I needed when I needed it (system navigation)* were significant predictors of how participants
28 scored their overall rating of healthcare quality experience. However, given that all domains
29 of quality were significantly associated with a positive care experience when assessed
30 individually, there remains a need to consider all of these aspects when examining
31 healthcare quality from those in receipt of healthcare.
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47 When devising and or selecting a patient experience tool it is important to consider the
48 purpose of the data collected. For example, patient experience data which is to be used for
49 high stakes purposes, such as league tables for healthcare organisations or where scores
50 are rewarded with financial remuneration, require robustly developed surveys. These
51 surveys warrant the resource implications of standardised inclusion criteria, adjustment for
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3 patient types (i.e. illness severity) and other known confounding variables. However, a
4 patient experience tool required to direct local quality improvement work requires other
5 important considerations, such as the brevity of the tool to enable repeated measures over
6 time (i.e. monthly data collection) and to be fit for purpose by frontline staff (no complex
7 statistical calculations). That is not to say that tools to be used for local QI do not need to be
8 robust, but rather there is an important balancing act between robustness and usefulness.
9 Therefore, even though the degree of influence of each quality domain varied, there is no
10 need for complex adjustments to be made to CEFIT scoring (such as weighting) for two
11 reasons. Firstly, the results of this study show that despite variations in degrees of influence
12 all quality domains were important to patient experience, and secondly, weighting would
13 compromise the utility of the tool whilst adding little robust value.
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27 Similarly, the domains of quality were not found to be significantly dependent on each other.
28 This suggests that each domain is necessary in terms of capturing the wholeness of the
29 patient experience of healthcare quality. This also suggests that an overall rating score is
30 not necessary, rather each indicator is important and the more appropriate way to score
31 CEFIT is a collective score of all domains as opposed to an overall rating score.
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40 The model of healthcare quality which influenced the development of CEFIT found that
41 person-centred care was not an independent domain, but rather foundational to all other
42 domains (Beattie et al, 2016). For example, *effective* care can only be achieved if the
43 evidence for treatment is adjusted to the patients' personal circumstances, such as
44 medication dose adjustment due to other medical conditions. The way in which the
45 effectiveness of treatment options is explained to the patient is paramount to the patient
46 experience of healthcare quality. The non-technical skills and behaviours of healthcare
47 professionals remained fundamental to the participants' judgement of healthcare quality.
48 This is consistent with other studies which have examined predictors of healthcare quality
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3 from the patient perspective (Jenkinson et al, 2002; Attree, 2001). A qualitative study
4 exploring the key factors of good nursing care identified five key themes, which were similar
5 to those in CEFIT (Larrabee and Bolden, 2001). They summarised these themes of good
6 care as: Providing for my needs; treating me pleasantly; caring about me; being competent
7 and providing prompt care. Examining patient's experiences of care received would clearly
8 help healthcare professionals reflect on the care they provide and also assist them to design
9 appropriate care plans and perhaps make modifications to the services they deliver. Ahmad
10 and Alasad (2004) suggest that when a patient has a positive interaction with healthcare
11 staff, this will also be positive for the staff and the organisation in which they work.
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21 Over 150 years ago Florence Nightingale advocated that caring attitudes and behaviour
22 were fundamental to quality of care (Meyer and Bishop, 2007). Good communication skills,
23 empathy and caring appear to be the strongest predictor's of how a patient will evaluate the
24 care they have received. Attree (2001) concluded that patients described 'good quality care'
25 as individualised and patient-focused through the presence of a caring relationship.
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31 Receiving what patients described as 'good quality care' enhanced a feeling of being
32 genuinely cared for and about. This in turn facilitated trust and confidence between the
33 patient and their health care professional. Rurita (1999) highlighted the relationship between
34 nursing staff and patients as being central to the quality of care patients perceived they had
35 received. More recent studies have also highlighted the importance of caring behaviours as
36 essential elements of quality of healthcare (Haggerty et al, 2007; Barelds et al, 2009,
37 Mohammed et al, 2016). Caring behaviours have been found to be key domains within other
38 patient experience of healthcare quality instruments, namely HCAHPS (Centers for Medicare
39 and Medicaid, 2013), QPP (Wilde et al, 1994), PPEQ (Wong et al, 2013), NHS IP (Picker
40 Institute, 2012), SIPES (Scottish Government, 2012), HKIEQ (Wong et al, 2013), PEQ
41 (Pettersen et al, 2004), NORPEQ (Oltedal et al, 2007), I-PAHC (Webster et al, 2011), and
42 PPQ (Rao et al, 2006).
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3 Our analyses also found that age was the only social-demographic factor influencing
4 participants' scores of healthcare quality. Specifically, an increase in age was associated
5 with an increase in positive ratings of healthcare quality. This finding is supported in the
6 literature (Thi et al, 2002; Hargreaves et al, 2012; Xesfingi and Vozikis, 2016). Other
7 demographic variables such as gender, BMI, address, level of education and income had no
8 influence over scores of healthcare quality. Other studies have found an association
9 between gender and healthcare quality; finding that men tend to be more satisfied with their
10 care than women (Ahmad and Alasad, 2004; Thi et al, 2002). Men's overall ratings of
11 healthcare experience have been found to be influenced by how well their pain control is
12 managed, whereas women's ratings are associated with behavioural aspects of clinical staff
13 (Hargreaves et al, 2012). Education has also been found to influence patient experience
14 ratings of healthcare plans (Damman et al, 2009). We did not find any relationship between
15 participant's education and patient experience. This may be due to differences in how
16 patients evaluate healthcare plans, as opposed to care experience.

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31 Even when tools are not being used to measure patient experience, identifying aspects of
32 quality which are more likely to predict a positive patient experience in healthcare can be
33 valuable. For example, our findings suggest the importance of waiting time, receipt of
34 effective care and the ability to navigate the healthcare system as important predictors of
35 their overall care experience. It is likely that the importance of these predictors also change
36 as healthcare evolves. For example, waiting times may have re-emerged as important
37 recently with the international financial challenges of balancing cost and quality. Similarly,
38 as healthcare becomes increasingly complex, due to advances in treatment and an increase
39 in specialists, the ability of patients to navigate healthcare becomes more challenging.
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49 Acting on aspects of quality which are important to patients could help direct limited
50 resources to improve healthcare quality.
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54 **Limitations**

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3 The nature of a population survey confines the results to those with a generic recent
4 healthcare experience in an Australian population. This method does not take account of
5 variations in how people from differing healthcare contexts (i.e. hospital or community/family
6 practitioner) or location (i.e. urban, rural, less affluent areas) may have interpreted the CEFIT
7 questions. The survey enabled access to a sample adequate for ordinal (multiple) logistic
8 regression and the findings suggest the robustness of CEFIT to warrant the necessary
9 resource for large scale testing in an inpatient environment.
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20 **Implications for policy, practice and future research**

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23 Establishing the importance of domains of healthcare quality could inform what and how the
24 patient experience of healthcare quality is measured. Our analysis shows that all domains in
25 the CEFIT were important to the patient experience of quality of healthcare, therefore
26 complex statistical weighting of specific domains are not required. Rather, each domain is of
27 value particularly when enacted in a person-centred way. As with any new tool, additional
28 research will be required to determine its utility over time. **However, a brief instrument such**
29 **as CEFIT, which can be completed quickly is clearly needed for improvement purposes**
30 **within ward and clinical environments. Previous lengthy surveys are likely to be a burden to**
31 **both patients and clinicians and unsuitable for repeated measurements at the frontline of**
32 **care. Diverting resources from care delivery to care measurement is likely to negatively**
33 **affect the very concept we are trying to improve – quality of care.** Further validation work is
34 clearly required within an inpatient population to establish whether CEFIT captures the
35 patient experience of hospital quality. In the future we believe that CEFIT would be useful
36 for problem identification to direct improvement efforts but are aware that this may need to
37 be supplemented with additional qualitative data. CEFIT is not intended to discriminate
38 reliably between care providers but rather measure local improvement over time. A future
39 study examining the responsiveness of CEFIT in a specified context (i.e. hospital) is needed.
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Conclusion

Understanding patients' views on their experiences of healthcare is essential for any service to be improved. Identifying those domains of quality that promote a positive experience will help healthcare professionals provide improved care. Despite the evolutionary nature of healthcare, caring behaviours of healthcare staff appear to be pivotal in patients' evaluations of healthcare quality. Overall CEFIT has shown promise as a tool for patients' evaluation of their healthcare experience. CEFIT has been designed for improvement purposes (i.e. brevity) and this study has allowed us to test out the tool in a range of healthcare settings. Future work will focus specifically on use of the tool at a ward/team level and explore its potential as a means of understanding the domains of quality contributing to a positive experience in such a setting.

Declaration

The authors declare that they have no competing interests.

List of abbreviations

HCAHPS - Hospital Consumer Assessment of Healthcare Providers and Systems

QPP - Quality from the Patients' Perspective

PPE-15 - Picker Patient Experience Questionnaire

NHSIP – National Health Service Inpatient Survey

SIPES - Scottish Inpatient Patient Experience Survey

HKIEQ - Hong Kong Inpatient Experience Questionnaire

PEQ - Patient Experience Questionnaire

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3 NORPEQ - Norwegian Patient Experience Questionnaire

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5 I-PAHC - Patient Experiences with Inpatient Care

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7 PPQ - Patient Perceptions of Quality

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12 **Ethical approval and consent to participate**

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15 Ethics approval was sought and approved by the Human Ethics Review Panel Central
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17 Queensland University (Reference H13/06-120).

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22 **Competing interests**

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25 The authors declare that they have no competing interest

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31 **Funding**

32
33
34 The University of Stirling provided funding to embed the CEFIT questions within the
35
36 Queensland Annual Social Survey.

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41 **Authors' contributions**

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44 AS – Devised study, developed paper

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47 MB – Devised Quality questions, developed paper

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50 JC – Analysed data, developed paper

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Table 1: Demographics of sample (n=802) who answered CEFIT questions

Demographic Variable	%
Marital Status	
Single	11
Widowed	6.7
Divorced	6.9
Separated	2.4
Married	67.3
De facto	5.7
Gender	
Male	50.5
Female	49.5
Age	
Mean (standard deviation)	57.8 (15.7)
Country of birth	
Australia	79.1
rest of world	20.9
Years of education	
1-10 years	24.3
11-12 years	20.8
13-14 years	12.6
15+ years	42.3
Employment status	
Employed full time	35.3
Employed part time/casual	17.1
Unemployed	5.1
Retired/pensioner	38.1
Student	1.1
Home duties	3.3
Household income category	
Nil-\$26,000	13.0
\$26,001 - \$52,000	11.8
\$52,001 - \$100,000	15.7
Greater than \$100,000	23.6
Did not report income	35.9

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Table 2 Correlation between independent variables

Quality domains	VIF
Safe care (Q1)	1.38
Timely care (Q2)	1.26
Met your personal needs (Q3)	2.47
Caring staff (Q4)	2.11
Got care you needed (Q5)	2.47

Table 3 Ordinal logistical regression on overall care experience

	Unadjusted model OR (95% CI)	# obs	Adjusted model OR (95% CI)
did you receive safe care (Qi1)	2.38 (1.86 to 3.04)	789	1.06 (0.81 to 1.38)
did you receive timely care (Qi2)	2.09 (1.80 to 2.42)	797	1.52 (1.30 to 1.79)
did you receive care that met your personal needs (Qi3)	4.27 (3.42 to 5.33)	799	2.00 (1.47 to 2.72)
did you experience staff that were caring towards you (Qi4)	5.29 (3.98 to 7.03)	799	1.36 (0.92 to 2.00)
were you able to get the care you needed (Qi5)	4.79 (3.74 to 6.13)	799	2.10 (1.49 to 2.93)

Bold p value of <0.05

obs = 787 for Adjusted model

Prob > chi2 = 0.00

Table 4 Ordinal logistical regression on each quality indicator, predictor variable age

	# obs	OR (95% CI)	Prob > chi ²
did you receive safe care (Qi1)	790	1.72 (1.03 to 2.86)	0.04
did you receive timely care (Qi2)	799	2.35 (1.70 to 3.26)	0.00
did you receive care that met your personal needs (Qi3)	800	2.10 (1.40 to 3.14)	0.00
did you experience staff that were caring towards you (Qi4)	801	2.22 (1.38 to 3.56)	0.00
were you able to get the care you needed (Qi5)	801	1.81 (1.13 to 2.91)	0.01

Bold p value of <0.05

Table 5 Ordinal logistical regression on overall care experience

	Adjusted model
	OR (95% CI)
did you receive safe care (Qi1)	0.73 (0.42 to 1.27)
did you receive timely care (Qi2)	1.42 (0.96 to 2.10)
did you receive care that met your personal needs (Qi3)	2.31 (1.40 to 3.81)
did you experience staff that were caring towards you (Qi4)	0.84 (0.47 to 1.54)
were you able to get the care you needed (Qi5)	2.85 (1.73 to 4.69)

Bold p value of <0.05

obs 788 for Adjusted model

Prob > chi2 = 0.00

Appendix 1: Care Experience Feedback Improvement Tool (CEFIT)

<p>The five statements below have been identified as important aspects of care by patients. We would welcome your feedback on how often you experienced these aspects of quality whilst receiving care. Examples are given to help describe each of the statements. You may have different examples or interpretations of the statements, which is OK.</p> <p>Please tick one box like this <input checked="" type="checkbox"/> with a ball point pen. If you change your mind just cross out your old response and make a new choice. Please answer every statement.</p>					
	Never ¹	Occasionally ²	Sometimes ³	Often ⁴	Always ⁵
1. I received safe care...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Examples might include:</i> Staff washed their hands before and after any direct contact with me I received the right medication dose</p>					
	Never ¹	Occasionally ²	Sometimes ³	Often ⁴	Always ⁵
2. I received timely care...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Examples might include:</i> I waited an acceptable amount of time to be seen I received procedures and treatments within a reasonable time</p>					
	Never ¹	Occasionally ²	Sometimes ³	Often ⁴	Always ⁵
3. My care met my personal needs...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Examples might include:</i> My care was tailored to my individual needs i.e. adjustments made for my other conditions and personal lifestyle I was involved in all decisions about my care</p>					
	Never ¹	Occasionally ²	Sometimes ³	Often ⁴	Always ⁵
4. Staff were caring to me...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Examples might include:</i> I was treated pleasantly and with courtesy Staff really listened to me and took my concerns seriously</p>					
	Never ¹	Occasionally ²	Sometimes ³	Often ⁴	Always ⁵
5. I was able to get the care I needed...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>Examples might include:</i> I knew how to access the care I needed There were no barriers to me getting the treatment/services that I needed</p>					