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Complete List of Authors:	Rafferty, Anne Marie; King's College London, Florence Nightingale School of Nursing and Midwifery Philippou, Julia; King's College London, Nursing & Midwifery Fitzpatrick, Joanne; King's College London, Nursing & Midwifery Pike, Geoff; Employment Research Ball, Jane; National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (Wessex), University of Southampton, Centre for Innovation and Leadership in Health Sciences
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**Title page**

The Culture of Care Barometer: Development and testing of a tool for use in healthcare settings.

**Full name, postal address, e-mail and telephone number of the corresponding author:**

Professor Anne Marie Rafferty

57 Waterloo Road

London SE1 8WA

Email: [anne\\_marie.rafferty@kcl.ac.uk](mailto:anne_marie.rafferty@kcl.ac.uk)

Tel: 02078483012/3984

**Full name, department, institution, city and country of all co-authors:**

Professor Anne Marie Rafferty, Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London UK.

Dr Julia Philippou, Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London UK.

Dr Joanne M. Fitzpatrick, Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London UK.

Geoff Pike, Employment Research, Hove, UK.

Jane Ball, Faculty of Health Sciences, University of Southampton, Southampton UK & Karolinska Institute, Stockholm, Sweden.

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## Abstract (269 Words)

**Objective:** Concerns about care quality have prompted calls to create workplace cultures conducive to high quality, safe and compassionate care and provide a supportive environment in which staff can operate effectively. How healthcare organisations assess their culture of care is an important first step in creating such cultures. This paper reports on the development and validation of a tool designed to assess perceptions of a caring culture among healthcare workers preliminary to culture change.

**Design/Setting/Participants:** An exploratory mixed methods study designed to develop and test the validity of a tool to measure 'culture of care' through focus groups and questionnaires. Questionnaire development was facilitated through; a literature review, experts generating items of interest and focus group discussions with healthcare staff across specialities, roles and seniority within three types of public healthcare organisations in the UK. The tool was designed to be multi-professional and pilot tested with a sample of 467 nurses and healthcare support workers in acute care and then validated with a sample of 1698 staff working across acute, mental health and community services in England. Exploratory factor analysis was used to identify dimensions underlying the Barometer.

**Results:** Psychometric testing resulted in the development of a 30-item questionnaire linked to four domains with retained items loading to four factors: organizational values ( $\alpha=0.93$ , valid  $n=1568$ ,  $M=3.7$ ); team support ( $\alpha=0.93$ , valid  $n=1557$ ,  $M=3.2$ ); relationships with colleagues ( $\alpha=0.84$ , valid  $n=1617$ ,  $M=4.0$ ) and job constraints ( $\alpha=0.70$ , valid  $n=1616$ ,  $M=3.3$ ).

**Conclusions:** The study developed a valid and reliable instrument with which to gauge the different attributes of care culture perceived by healthcare staff with potential for organisational benchmarking.

## Strengths and limitations of the study

- This study explored the reliability, content validity and factorial structure of the Culture of Care Barometer (CoCB) tool.
- The CoCB tool has potential use in healthcare settings and research and can be used at macro, meso and micro level within organizations to measure the culture of care.
- The dual emphasis of the tool on the dialogic and diagnostic aspects of organisational development theory allows organisations to assess their culture of care and stimulate dialogue and reflection on questions of culture and what is perceived to be of particular value within teams.
- Early indications demonstrate that the tool has good face validity with regard to key factors associated with a culture of care: Trust level values, team support, relationships with colleagues and job constraints.
- The CoCB requires further validation to ascertain the concurrent and predictive validity and to evaluate the usefulness and acceptability of the tool across different care settings and with a wider population.

## Main text

### BACKGROUND

The importance of culture in providing high quality and safe care to patients has been emphasized in many investigations of failings in healthcare systems both nationally [1, 2] and internationally [3]. Healthcare organizations have begun to look critically at ways that can improve their culture and consequently the care provided to patients [4]. In the United Kingdom (UK), the Care Quality Commission, has drawn attention to “cultures of care that are too often ‘task-based’ when they should be person-centred, and where the unacceptable become the norm” [5](pg.5) noting variation in cultures within organizations reflecting leadership and management failings [6]. Learning from high profile failures in care delivery indicates that quality and culture are not uniform within, let alone across, organisations [6, 7]. This was evident in the description and analysis of events (and the context to those events) at Mid Staffordshire National Health Service (NHS) Trust, described by the Robert Francis Inquiry [1]. Pockets of excellence can coexist alongside the worst examples of care failures [6]; lack of consistency in care culture impedes the spread of good practice across organisations [1, 8]. Establishing cultures that will allow healthcare organisations to achieve the ultimate goal of providing high quality care has therefore become a major policy concern.

Evidence suggests that major failures are frequently not brought to light by the systems for quality assurance or improvement that are part of most healthcare organizations in developed countries - such as incidence reporting, mortality and morbidity reviews, inspections, accreditations, clinical profiling and risk and claim management [3]. Since these cultural attributes are not picked up in the measures of quality and performance currently in use; metrics fail to capture the meaning and reality of a culture of care for patients or staff. Moreover, research in the UK demonstrates that the wellbeing of staff is closely linked to the wellbeing of patients, and staff engagement is a key predictor of a wide range of outcomes in healthcare organizations [9].

One of the first questions organization have to consider in trying to establish such care cultures is how to assess the organizational culture. The first difficulty in this is that the concept of culture is broad and multi-faceted [10]. While culture as a concept is widely used, the term itself has been described as an ‘indescribable mist’ [10]. Conceptual debates over how culture is defined continue, and consequently impact how it is studied [10]. Much of the literature in healthcare favours the concept of culture as shared beliefs, norms and routines through which a society can be interpreted and understood [11]. With this definition in mind our focus was on understanding the culture of care, as a subset of organisational culture, and help organizations gauge the different attributes of caring environments.

From an organisational development (OD) perspective - the practical application of culture assessment tools speaks to the diagnostic premises of OD theory and practices. Such tools ascertain the strengths and weaknesses of organizations and help them prescribe interventions or ‘treatments’ of change based on an objective diagnosis from the data collected [12]. Within healthcare there is a plethora of well-known instruments for measuring the culture of organizations and ‘patient safety’ culture [13]. In a national survey of healthcare organizations in the UK to identify the culture assessment tools that are used within the English NHS, concluded that while organizations are increasingly using culture assessment instruments these focus primarily on the assessment of safety culture rather than perspectives of quality [13]. Moreover, while the centrality of patients’ experiences, of safety, caring and supportive cultures, in such tools is well evidenced, a large research programme examining culture and behaviour in the English NHS concluded that

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2  
3 creating caring cultures where staff can feel supported, respected, valued and engaged are equally  
4 important for providing high quality care [7]. Therefore, it is argued that achieving the optimal care  
5 culture is only possible in organizations where staff feel valued, respected and supported, and when  
6 relationships are good between managers, staff, teams, departments and across institutional  
7 boundaries [7, 9, 10]. An initial analysis of the literature revealed a lack of instruments for measuring  
8 'care cultures' from the perspective of service providers as distinct from organizational culture or  
9 patient safety culture [14].  
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11  
12 Diagnostic OD entails a problem-based approach where organisations are considered to be  
13 problematic and need fixing [15]. This approach to data gathering has been described as 'problem-  
14 sensing' [7] as it actively seeks out weaknesses in organizational systems. This can result in  
15 organizational members being wary as they may feel that the main purpose of data collection is to  
16 attribute blame; ultimately this can inhibit or make members more resistant to change [7, 12]. One  
17 of the most sensitive messages coming out from Mid-Staffordshire Inquiry was how staff suffered as  
18 a result of raising concerns [1]. This has led to a review of the way NHS organizations deal with  
19 concerns raised by NHS staff, advocating for a culture of safety and learning in which staff feel safe  
20 to raise concerns and these conversations take place as part of everyday practice without fear of  
21 blame or recrimination [15]. Previous research identified that extant culture assessment tools failed  
22 to address culture attributes that promote the development of a blame-free environment [13].  
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25  
26 In contrast to diagnostic OD approaches, dialogic approaches are primarily concerned with  
27 'meaning-making' [12]. Building a more dialogical approach to OD [12] therefore could encourage  
28 reflection and stimulate discussion about the culture of an organization and how 'care givers'  
29 express and create meaning in their performance of care [14]. Given the gaps in current culture  
30 measurement tools we aimed to develop a tool that could act as a 'diagnostic' measurement to help  
31 organisations assess the culture of care but also as a 'dialogic' tool designed to prompt reflection on  
32 the underlying issues involved in creating a caring culture. The current paper presents the  
33 development and testing of the Culture of Care Barometer (CoCB) as a tool that has the potential to  
34 serve these purposes.  
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## 38 METHODS

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40 We followed well-recognized and comprehensive approaches for instrument development and  
41 testing e.g. Hinkin's framework for scale development [17, 18, 19], and pursued a variety of data  
42 collection and analysis methods to operationalize the elements that are important in creating caring  
43 cultures and to ensure the reliability of the tool [20]. A detailed account of the process of developing  
44 and testing the CoCB is provided below. Figure one provides an overview and graphical  
45 representation of this process.  
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### 10 **Item generation**

11 We used a mixed method approach in the creation of items to assess the culture of care construct.  
12 Our processes involved both inductive and deductive approaches to generate items [17, 18]. Initially  
13 an inductive approach was used where an expert panel of six healthcare leaders developed a  
14 prototype questionnaire by generating items and domains they considered important in improving  
15 patient care. The expert panel consisted individuals with extensive experience and expertise in  
16 regulation, leadership, healthcare-delivery, management, policy and research within the English  
17 NHS, including the use of tools used in inspection regimes. This process was complemented by a  
18 deductive approach involving a comprehensive literature review in four major healthcare related  
19 electronic database resources (CINAHL, EMBASE, MEDLINE, and Web of Science; from 1945 to 2015)  
20 using key terms such as 'organisational culture' 'assessment tools', 'healthcare settings' and 'quality  
21 of care'. Through the literature review key studies [e.g. [7, 20, 21, 22, 23]] and previous  
22 comprehensive reviews on validated scales measuring organisational culture [e.g. [14, 13, 24, 25]]  
23 within healthcare were extracted and together, these two complementary processes helped us  
24 create a comprehensive pool of candidate items that could be used to measure the concept of the  
25 culture of care.  
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### 28 **Content adequacy assessment**

29 A comprehensive approach was also followed at the stage of content adequacy to test the  
30 conceptual consistency of the items and assure content validity of the questionnaire. In order to  
31 achieve this we undertook six focus groups with a cross section of healthcare staff (N=34) of  
32 different levels of seniority and from different settings e.g. both in-patient and out-patient. The aim  
33 of these focus groups was to explore perceptions of terminology and cognitively test items and their  
34 meaning to enable a 'co-creation approach' to the development of the tool with frontline staff. This  
35 was envisaged as a process that would allow the tool development stage to address some limitations  
36 reported in the literature in terms of developing tools that are 'fit for purpose' in the NHS context.  
37 The process also allowed us to explore staff ideas of what constitutes a 'good culture of care' and  
38 key 'signs and symptoms' of an organisation that has a good or poor culture of care and identify any  
39 additional items relevant to the concept. At the same time we were able to test the appropriateness,  
40 comprehension and clarity of items, and ease and acceptability of instructions and format of the  
41 initial questionnaire [19].  
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47 At this stage an initial tool of 37 items clustered under four domains was developed and a five point  
48 scale, ranging from not at all, to fully agree, was used to record participants' agreement with the  
49 items. The first domain comprised six items that explored issues surrounding resources and quality  
50 of care, facilities and equipment, staffing levels and views of workplace in terms of safety and  
51 quality. It included the Friends and Family Test as a reference item [26] and a question about action  
52 required to improve resources. The second domain comprised 10 items relating to management and  
53 support. Ten items in the third domain addressed development, staff involvement in decision  
54 making and overall culture in the organisation. The fourth domain included 11 items about staff  
55 meetings, teamwork and feedback and willingness of the organisation to learn from issues raised as  
56 well as incidents. For each domain a question was included about how much influence participants  
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3 had to improve things, rated on a five point scale (from 'none', to 'a lot'). The initial tool is provided in  
4 full in the study's report [27].  
5

6 The tool was then pilot tested in an acute NHS organization with a sample of registered nurses and  
7 midwives and healthcare support workers (n=467, 24% response rate). The aim of this pilot testing  
8 was to examine how well the tool performed and test the face validity and internal reliability of the  
9 items before wider testing. An initial factor analysis was conducted to reduce the number of items  
10 and further refine the tool. Results from this pilot study are reported in the study's report [27]. The  
11 items identified through this analysis were explored by the research team using an index-card-  
12 sorting exercise [28]. This involved asking the members of the research team to sort the items into  
13 categories. The items were printed separately on a small index card each member of the team  
14 sorting the cards into groups. Each then described what they saw as the common theme relating to  
15 the cards in each group. Through this analysis and process, 30 items were retained in the  
16 questionnaire representing the concept of culture of care and these were classified under seven  
17 categories: engagement, empowerment, management and leadership, values, roles, resources and  
18 team. Before administering the final questionnaire to a wider sample a small number of NHS staff  
19 reviewed the items and the overall questionnaire to identify whether this provided an accurate  
20 representation of the overall culture in their workplace. The revised version of the tool is available  
21 in full in the study report [27].  
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### 27 **Questionnaire administration**

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29 The retained items and revised tool was administered to a wider sample with the objective of  
30 examining how well the tool performed and how well the remaining items confirmed expectations  
31 of the psychometric properties of the tool. Below we present the main procedures we followed  
32 during this stage of development and testing the CoCB tool.  
33

34 Administration of the questionnaire was undertaken in two further healthcare organisations. One  
35 was a mixed mental health care provider in London with community care and in-patient beds and  
36 the other was a predominately community healthcare organisation in a mixed urban/rural setting in  
37 the South of England. A total sample approach was adopted and an electronic version of the  
38 questionnaire was sent to the two organisations for distribution. We also forwarded 1500 paper  
39 copy questionnaires for each organisation to distribute to participants with less access to the  
40 electronic version. Questionnaires were distributed in June 2014 and data collection lasted for about  
41 eight weeks.  
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### 46 **Factor analysis and internal consistency assessment of the tool**

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48 Data were coded and entered into a Microsoft Excel spreadsheet before exported and analysed  
49 through IBM SPSS v21 statistical software. The demographic and employment characteristics of the  
50 participants were analysed descriptively and presented as numbers and percentages. A principle  
51 component of exploratory factor analysis was undertaken to identify whether the correlations  
52 between a groups of observed items originated from one or more latent variables/factors in the  
53 data. Internal consistency was tested using Cronbach's coefficient  $\alpha$ . An Alpha reliability score above  
54 0.7 is considered good [29, 28] therefore the target level of reliability was set at 0.70.  
55

### 56 **RESULTS**

### Sample characteristics

A total of 1705 staff working across mental health and community services in both clinical and non-clinical roles returned the questionnaires organization 1 (n=700, 25% response rate); organization 2 (n=1005, 24% response rate), of which 1698 were found complete and eligible for statistical analysis. Table one summarise the main profile and employment characteristics of participants. Overall four-in-five (82%, n=1237) respondents were female, with a large proportion of participants indicating being age 40 or older (Table 1). Almost all sample participants (93%, n=1459) spoke English as their first or main language. There were no difference in the demographic variable by organization. Two-thirds of staff across the two organisations worked full-time (68%, n=1074). By staff group there was a similar responded profile within the two organizations and overall a larger proportion of nurses responded to the questionnaire compared to other group of staff.

Table 1: Characteristics of participants

	Percentage (n)		
	Organization 1 (n=700)	Organization 2 (n=1005)	Overall (n=1705)
<b>Female</b>	<b>75</b>	<b>87</b>	<b>82</b>
<b>English as a first or main language</b>	<b>86</b>	<b>98</b>	<b>93</b>
<b>Age groups</b>			
<29	8	8	8
30-39	17	17	17
40-49	33	32	32
50-59	32	35	34
60 plus	9	8	8
<b>Staff group</b>			
Registered Nurses and Health Visiting Staff	30	34	32
Healthcare Assistant/Support Worker	13	5	8
Allied Health Professionals	25	25	25
Estates and facilities	2	4	3
Doctor/Dentist	5	3	4
Administrative and Clerical Staff	15	15	15
Central Functions and Corporate Services	4	6	5
Other	4	6	5
<b>Work setting</b>			
Community	36	45	41
Clinics/Outpatient Departments	13	14	14
Wards/Inpatient Units	27	7	15
Office	16	27	23
Other	9	7	7
<b>Employment status</b>			
Full-time	76	64	68
Part-time	25	36	32

### Structure of the tool

A factor analysis was performed on the 30 items to identify patterns of loading and extract underlying factors. Through this analysis four factors were identified. The composition of the factors was based on aggregating the scores for each item to create a single score for each factor and



dividing this figure by the number of item in the CoCB tool to provide a meaningful average score. The relevant loading of items for each of the four factors is presented in Table 2.

The 12 items of the first sub scale were predominately related with macro level elements within organizations that influence culture such as valuing employees, good communication within the organization and visible leadership at top level. Therefore, this subscale was consider addressing wider 'organizational values'. Further 11 items were loading to the second factor labelled as Team support. Items loading to this subscale were concerned with the 'meso level' of organizations structure and included elements that described primarily team support relationships and management and development of employees within organizations. The remaining seven items concerned aspects of every day work at micro level within organizations and these were loading into two factors. One sub-scale was mainly associated with four items describing social elements of work such as respect and social support between co-workers and the final three items were concerned with the ability of employees to do their job within the limits of time and resources available to them (Factor 4).

Table 2: Factor analysis and loading of items

Subscales and items	Loading
<b>Factor 1: Organizational Values (Macro Level)</b>	
The Trust listens to staff views	0.84
The Trust has a positive culture	0.77
There is strong leadership at the highest level in the Trust	0.75
I am able to influence how things are done in the Trust	0.74
I would recommend this Trust as a good place to work	0.70
I feel well informed about what is happening in the Trust	0.70
Staff successes are celebrated by the Trust	0.70
The Trust values the service we provide	0.69
Trust managers know how things really are	0.68
I am proud to work in this Trust	0.65
A positive culture is visible where I work	0.50
I get the training and development I need	0.40
<b>Factor 2: Team Support (Meso Level)</b>	
I feel well supported by my line manager	0.87
My line manager treats me with respect	0.84
My line manager gives me constructive feedback	0.83
My concerns are taken seriously by my line manager	0.81
I feel part of a well-managed team	0.60
I am kept well informed about what is going on in our team	0.52
I feel supported to develop my potential	0.50
I know who my line manager is	0.45
I am able to influence the way things are done in my team	0.44
I feel able to ask for help when I need it	0.44
Unacceptable behaviour is consistently tackled	0.40
<b>Factor 3: Relationships with colleagues (Micro Level)</b>	
The people I work with are friendly	0.81
When things get difficult, I can rely on my colleagues	0.79
I feel respected by my co-workers	0.76
I have positive role models where I work	0.56
<b>Factor 4: Job constrains (Micro Level)</b>	
I have sufficient time to do my job well	0.79
I have the resources I need to do a good job	0.72

I know exactly what is expected of me in my job

0.41

Reliability analyses were performed on each factor to identify how items loading to factors are considered a positive endorsement of the sub-scale. The results of these analyses are presented in table 3. Cronbach's  $\alpha$  for the macro level (Factor 1: Organizational values) and meso level scales (Factor 2: Team support) were very high both at 0.93. Cronbach's  $\alpha$  for the micro level factors were: 0.84 (Factor 3: Relationships with colleagues) and 0.70 (Factor 4: Job constrains) accordingly.

Table 3: Scale characteristics (Cronbach's coefficient  $\alpha$  reliability analysis)

	<b>Factor 1</b> Organizational values (Macro Level)	<b>Factor 2</b> Team support (Meso Level)	<b>Factor 3</b> Relationship with Colleagues (Micro Level)	<b>Factor 4</b> Job constrains (Micro Level)
Total Items loading	12	11	4	3
Alpha reliability	0.93	0.93	0.84	0.70
Number of valid responses	1568	1557	1617	1616
Mean score	3.7	3.2	4.0	3.3

### Usefulness and added value of the tool to healthcare organizations

The results from the CoCB were presented to the healthcare organisations through two independent reports detailing the findings from testing the tool in each organisation. Following the presentation of the results we invited key individuals from each organization (n=5) to a follow up discussions to receive feedback on the usefulness of the tool and explore whether the tool meets dialogic and diagnostic premises of organizational development [12]. These individuals held strategic leadership positions within the two organizations with responsibilities of overseeing workforce and culture initiatives. These sessions were audio recorded and analysed thematically.

From a diagnostic perspective the consensus overall was that the CoCB tool resonated with other instruments used in the organisations, adding 'colour and depth' to them.

*"I think it is a much richer type of feedback than we get from the staff survey. We liked the logic and flow and could appreciate the sense of questions." (Organizational Development Manager, Organization 2)*

*"...you get these action plans that come out of the staff surveys, but the detail is not the depth information that we had with this, so this is for more....enables you to think more about why, then, and question, as oppose to, 'oh, right, we've got to do something on that area.'" (Senior Manager, Organization 1)*

The brevity of the tool, the fact that it was easy to complete and was perceived as targeting the right domains was appreciated by staff. Moreover, from a diagnostic perspective the tool was perceived by participants as useful in providing a reference point for them to gauge where they were on a cultural spectrum or journey.

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3 From a dialogical perspective the fundamental value of the CoCB tool was reflected in the belief that  
4 'culture changes by talking about it' and the Barometer helped to surface issues for discussion. Data  
5 from the COCB were seen as helpful in drilling into further detail or using it as a prompt for a 'quality  
6 conversation' for instance, with smaller, discrete groups, teams or where it was felt things were not  
7 quite right or when organisations felt the need to gauge the impact of changes they had made.  
8

9  
10 *'Culture ...does not change overnight and the fact that it is [the CoCB tool]  
11 a prompt to reflect upon has been I think really powerful aspect of the  
12 tool.'*(Senior Executive, Organization 2).

13  
14 Finally, the commentary element of the tool was identified as providing a rich source of intelligence  
15 in helping to unpack notions of culture:

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17 *"trying to understand what it is that matters to staff and what they feel  
18 about the place that they work in" (Workforce Transformation Lead,  
19 Organization 2).*

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21 It was also regarded as helpful in picking up on contradictions that might exist in organisations, as  
22 one senior manager observed:

23  
24 *"where you've got high scores for 'my manager treats me with respect',  
25 but then, 'Oh, I don't think my manager understands what the real world  
26 is like' (Leadership Project Manager, Organization 1).*

27  
28 Richer feedback via the CoCB in comparison to the staff survey helped to tease out the  
29 contradictions and take the quality of conversation at team level to the next stage.  
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## 32 DISCUSSION

33  
34 Enabling the workforce to put the right things in place for patients is key to improving NHS  
35 performance in terms of quality and safety [30] and this is the underlying principle of the CoCB as a  
36 tool. The challenge all organisations face is that there is not a one-size-fits-all solution as each  
37 individual is unique and will react differently to the challenges and values of an organisation. The  
38 CoCB can provide feedback from staff to enhance understanding of the factors that contribute to a  
39 culture lacking in care and safety. The CoCB appeared to perform well in meeting the gap in the  
40 literature which suggests that there is a need for tools to assess culture with a focus on formative  
41 diagnostic purposes to support reflexive practice [13]. The focus on the carers' views helps to  
42 comprehend the intersection of individual and organisational factors which distinguish the CoCB  
43 from other tools that prioritise either macro or micro levels. Moreover, using a dialogic approach to  
44 organisational development we created a tool that can be a resource to facilitate the involvement of  
45 frontline staff, at different levels and with different roles, in culture change initiatives.  
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50 The CoCB tool possess several advantages over existing tools. During the development and testing of  
51 the tool we addressed concerns reported in the literature and from participants about the need for  
52 tools that are 'fit for purpose' [13] and are not onerous and time consuming to complete. One of the  
53 major strengths of this study was the co-creation of the tool in collaboration with frontline staff  
54 providing care within NHS organisations. Three main sources of data information were used to  
55 create the content of the tool including a prototype tool developed by an expert panel in this field, a  
56 comprehensive literature review of the concept of culture of care and other tools used within  
57 healthcare plus and input from interviews from staff working in healthcare organisations. Feedback  
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3 from participants indicated that the data collected via the CoCB could provide extra intelligence  
4 about the jigsaw of what is happening within organisations. Participants indicated that the tool could  
5 enhance or complement current data collection methods used in hospital settings such as the  
6 Friends and Family Test and the Staff Survey to identify concerns about poor care. In this way  
7 providing a more comprehensive picture of patient and staff satisfaction with services provided. In  
8 addition, participants' spoke of the struggle to make meaningful changes based on Staff Survey  
9 feedback alone and they shared that data collected via the CoCB alerted them to important  
10 contextual feedback and factors that in some cases were more useful in planning and developing  
11 action plans.  
12

13  
14 While the CoCB is a reliable tool and does seem to fill a niche for identifying and understanding  
15 some of the social processes at work within an organisation, we recognise that not all factors  
16 contributing to developing a caring culture may be included in the tool. We also acknowledge that  
17 not all the items may be relevant to all healthcare contexts and we recommend that testing and  
18 adaptation of these items may be necessary in future validations. Therefore, practitioners should  
19 use the CoCB in conjunction with other tools that can help organisations achieve culture change.  
20 Moreover, the sample of this testing was predominately nurse led, which may be a direct result of  
21 the proportion of nurse personnel working in the healthcare environments or may be reflecting the  
22 high media profile of nursing post Francis prompting engagement with culture of care issues.  
23 However, cultures are co-created by all members of an organisation and this means that everyone is  
24 responsible for the welfare of the organisation as a whole. Further work is needed to test the  
25 reliability and validity of the questionnaire as well as engagement and uptake of the tool from other  
26 professional groups.  
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31 Measuring and monitoring culture is a recurrent challenge in healthcare, the CoCB could act as a  
32 diagnostic, and practical tool for organisations to embrace as a first step in improvement work as  
33 well as a means of monitoring change over time. The tool has potential use in clinical practice and  
34 research. It is easy to administer, can be completed and analysed quickly providing timely feedback  
35 that can be used by organisations to identify areas of strength and weakness and help with the  
36 planning of continuous quality improvements or culture change initiatives that hospitals are  
37 undertaking. The wider applicability of the tool needs to be explored in future studies and reach out  
38 to groups that may not have a direct role in care provision but who nevertheless are an important  
39 part of the organisation and thus their feedback is important as culture is every one's business [23].  
40 At the time of writing a digital version of the tool is being developed. Further research should extend  
41 the current efforts and refine and evaluate the impact of the CoCB as necessary in order in order to  
42 develop interventions that can improve the culture of care in healthcare environments.  
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47 **Twitter** Follow Anne Marie Rafferty at @annemarieraffer, Julia Philippou at @julia\_philippou and  
48 Jane Ball at @JaneEBall  
49

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### 7 **Contributors**

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9 AMR was the principal investigator and with JB conceived and designed the study. AMR, JP, JF, GP  
10 and JB all contributed to the collection, analysis, or interpretation of data for the work. AMR and JP  
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23

### 24 **Competing interests**

25 None declared.  
26  
27

### 28 **Data sharing statement**

29  
30 Other data relating to the development of the CoCB tool are available by emailing AMR,  
31 anne\_marie.rafferty@kcl.ac.uk.  
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33

### 34 **Ethical approval**

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36 The project has been approved by the Psychiatry, Nursing and Midwifery Research Ethics  
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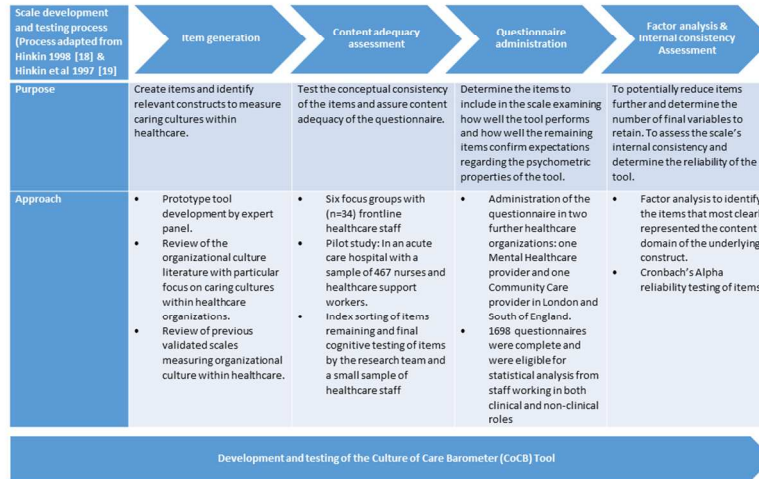


Figure 1: Process of developing and testing the Culture of Care Barometer (CoCB) tool

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# BMJ Open

## Development and testing of the 'Culture of Care Barometer' (CoCB) in healthcare organisations: a mixed-method study.

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**Title page**

Development and testing of the 'Culture of Care Barometer' (CoCB) in healthcare organisations: a mixed-method study.

**Full name, postal address, e-mail and telephone number of the corresponding author:**

Professor Anne Marie Rafferty

57 Waterloo Road

London SE1 8WA

Email: [anne\\_marie.rafferty@kcl.ac.uk](mailto:anne_marie.rafferty@kcl.ac.uk)

Tel: 02078483012/3984

**Full name, department, institution, city and country of all co-authors:**

Professor Anne Marie Rafferty, Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London UK.

Dr Julia Philippou, Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London UK.

Dr Joanne M. Fitzpatrick, Florence Nightingale Faculty of Nursing and Midwifery, King's College London, London UK.

Geoff Pike, Employment Research, Hove, UK.

Dr Jane Ball, Faculty of Health Sciences, University of Southampton, Southampton UK

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## Abstract

**Objective:** Concerns about care quality have prompted calls to create workplace cultures conducive to high quality, safe and compassionate care and provide a supportive environment in which staff can operate effectively. How healthcare organisations assess their culture of care is an important first step in creating such cultures. This paper reports on the development and validation of a tool, the Culture of Care Barometer, designed to assess perceptions of a caring culture among healthcare workers preliminary to culture change.

**Design/Setting/Participants:** An exploratory mixed methods study designed to develop and test the validity of a tool to measure 'culture of care' through focus groups and questionnaires. Questionnaire development was facilitated through; a literature review, experts generating items of interest and focus group discussions with healthcare staff across specialities, roles and seniority within three types of public healthcare organisations in the UK. The tool was designed to be multi-professional and pilot tested with a sample of 467 nurses and healthcare support workers in acute care and then validated with a sample of 1698 staff working across acute, mental health and community services in England. Exploratory factor analysis was used to identify dimensions underlying the Barometer.

**Results:** Psychometric testing resulted in the development of a 30-item questionnaire linked to four domains with retained items loading to four factors: organisational values ( $\alpha=0.93$ , valid  $n=1568$ ,  $M=3.7$ ); team support ( $\alpha=0.93$ , valid  $n=1557$ ,  $M=3.2$ ); relationships with colleagues ( $\alpha=0.84$ , valid  $n=1617$ ,  $M=4.0$ ) and job constraints ( $\alpha=0.70$ , valid  $n=1616$ ,  $M=3.3$ ).

**Conclusions:** The study developed a valid and reliable instrument with which to gauge the different attributes of care culture perceived by healthcare staff with potential for organisational benchmarking.

## Strengths and limitations of the study

- This study explored the reliability, content validity and factorial structure of the Culture of Care Barometer (CoCB) tool.
- The tool was tested with a total sample of over 2000 healthcare staff.
- The tool was only tested in public healthcare settings in England and hence requires further validation across different care settings to evaluate its usefulness and acceptability with wider populations.
- The CoCB requires further validation to ascertain its concurrent and predictive validity.

## Main text

### BACKGROUND

The importance of culture in providing high quality and safe care to patients has been emphasized in many investigations of failings in healthcare systems both nationally [1, 2] and internationally [3]. Healthcare organisations have begun to look critically at ways that can improve their culture and consequently the care provided to patients [4]. In the United Kingdom (UK), the Care Quality Commission, has drawn attention to “cultures of care that are too often ‘task-based’ when they should be person-centred, and where the unacceptable become the norm” [5](pg.5) noting variation in cultures within organisations reflecting leadership and management failings [6]. Learning from high profile failures in care delivery indicates that quality and culture are not uniform within, let alone across, organisations [6, 7]. This was evident in the description and analysis of events (and the context to those events) at Mid Staffordshire National Health Service (NHS) Trust, described by the Robert Francis Inquiry [1]. Pockets of excellence can coexist alongside the worst examples of care failures [6]; lack of consistency in care culture impedes the spread of good practice across organisations [1, 8]. Establishing cultures that will allow healthcare organisations to achieve the ultimate goal of providing high quality care has therefore become a major policy concern.

Evidence suggests that major failures are frequently not brought to light by the systems for quality assurance or improvement that are part of most healthcare organisations in developed countries - such as incidence reporting, mortality and morbidity reviews, inspections, accreditations, clinical profiling and risk and claim management [3]. Since these cultural attributes are not picked up in the measures of quality and performance currently in use; metrics fail to capture the meaning and reality of a culture of care for patients or staff. Moreover, research in the UK demonstrates that the wellbeing of staff is closely linked to the wellbeing of patients, and staff engagement is a key predictor of a wide range of outcomes in healthcare organisations [9].

One of the first questions organisations have to consider in trying to establish such care cultures is how to assess the organisational culture. The first difficulty in this is that the concept of culture is broad and multi-faceted [10]. While culture as a concept is widely used, the term itself has been described as an ‘indescribable mist’ [10]. Conceptual debates over how culture is defined continue, and consequently impact how it is studied [10]. Much of the literature in healthcare favours the concept of culture as shared beliefs, norms and routines through which a society can be interpreted and understood [11]. With this definition in mind our focus was on understanding the culture of care, as a subset of organisational culture, and helping organisations gauge the different attributes of caring environments.

From an organisational development (OD) perspective - the practical application of culture assessment tools speaks to the diagnostic premises of OD theory and practices. Such tools ascertain the strengths and weaknesses of organisations and help them prescribe interventions or ‘treatments’ of change based on an objective diagnosis from the data collected [12]. Within healthcare there is a plethora of well-known instruments for measuring the culture of organisations and ‘patient safety’ culture [13]. A national survey of healthcare organisations in the UK to identify the culture assessment tools that are used within the English NHS, concluded that while organisations are increasingly using culture assessment instruments these focus primarily on the assessment of safety culture rather than perspectives of quality [13]. Moreover, while the centrality of patients’ experiences, of safety, caring and supportive cultures, in such tools is well evidenced, a large research programme examining culture and behaviour in the English NHS concluded that

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2  
3 creating caring cultures where staff can feel supported, respected, valued and engaged are equally  
4 important for providing high quality care [7]. Therefore, it is argued that achieving the optimal care  
5 culture is only possible in organisations where staff feel valued, respected and supported, and when  
6 relationships are good between managers, staff, teams, departments and across institutional  
7 boundaries [7, 9, 10]. An initial analysis of the literature revealed a lack of instruments for measuring  
8 'care cultures' from the perspective of service providers as distinct from organisational culture or  
9 patient safety culture [14].  
10

11 Diagnostic OD entails a problem-based approach where organisations are considered to be  
12 problematic and need fixing [15]. This approach to data gathering has been described as 'problem-  
13 sensing' [7] as it actively seeks out weaknesses in organisational systems. This can result in  
14 organisational members being wary as they may feel that the main purpose of data collection is to  
15 attribute blame; ultimately this can inhibit or make members more resistant to change [7, 12]. One  
16 of the most sensitive messages coming out from the Mid-Staffordshire Inquiry was how staff  
17 suffered as a result of raising concerns [1]. This has led to a review of the way NHS organisations deal  
18 with concerns raised by NHS staff, advocating for a culture of safety and learning in which staff feel  
19 safe to raise concerns and these conversations take place as part of everyday practice without fear  
20 of blame or recrimination [15]. Previous research identified that extant culture assessment tools  
21 failed to address culture attributes that promote the development of a blame-free environment  
22 [13].  
23

24 In contrast to diagnostic OD approaches, dialogic approaches are primarily concerned with  
25 'meaning-making' [12]. Building a more dialogical approach to OD [12] therefore could encourage  
26 reflection and stimulate discussion about the culture of an organisation and how 'care givers'  
27 express and create meaning in their performance of care [14]. Given the gaps in current culture  
28 measurement tools we aimed to develop a tool that could act as a 'diagnostic' measurement to help  
29 organisations assess the culture of care but also as a 'dialogic' tool designed to prompt reflection on  
30 the underlying issues involved in creating a caring culture. The current paper presents the  
31 development and testing of the Culture of Care Barometer (CoCB) as a tool that has the potential to  
32 serve these purposes.  
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## 39 METHODS

40 We followed well-recognized and comprehensive approaches for instrument development and  
41 testing e.g. Hinkin's framework for scale development [16, 17, 18, 19], and pursued a variety of data  
42 collection and analysis methods to operationalize the elements that are important in creating caring  
43 cultures and to ensure the reliability of the tool [20]. A detailed account of the process of developing  
44 and testing the CoCB is provided below. Figure one provides an overview and graphical  
45 representation of this process.  
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49 *Insert Figure 1 Here*

### 50 Item generation

51 We used a mixed method approach in the creation of items to assess the culture of care construct.  
52 Our processes involved both inductive and deductive approaches to generate items [17, 18, 16].  
53 Initially an inductive approach was used where an expert panel of six healthcare leaders developed a  
54 prototype questionnaire by generating items and domains they considered important in improving  
55 patient care. The expert panel consisted of individuals with extensive experience and expertise in  
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3 regulation, leadership, healthcare-delivery, management, policy and research within the English  
4 NHS, including the use of tools used in inspection regimes. This process was complemented by a  
5 deductive approach involving a comprehensive literature review in four major healthcare related  
6 electronic database resources (CINAHL, EMBASE, MEDLINE, and Web of Science; from 1945 to 2015)  
7 using key terms such as 'organisational culture' 'assessment tools', 'healthcare settings' and 'quality  
8 of care'. Through the literature review key studies [e.g. [7, 21, 22, 23, 24]] and previous  
9 comprehensive reviews on validated scales measuring organisational culture [e.g. [14, 13, 25, 26]]  
10 within healthcare were extracted and together, these two complementary processes helped us  
11 create an initial list of candidate items and facilitated the refinement of items and elaboration of  
12 domains that could be used to measure the concept of the culture of care.  
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### 14 15 **Content adequacy assessment**

16  
17 A comprehensive approach was also followed at the stage of content adequacy to test the  
18 conceptual consistency of the items and assure content validity of the questionnaire. In order to  
19 achieve this we undertook six focus groups with a cross section of healthcare staff (N=34) of  
20 different levels of seniority and from different settings e.g. both in-patient and out-patient. The aim  
21 of these focus groups was to explore perceptions of terminology and cognitively test items and their  
22 meaning to enable a 'co-creation approach' to the development of the tool with frontline staff. This  
23 was envisaged as a process that would allow the tool development stage to address some limitations  
24 reported in the literature in terms of developing tools that are 'fit for purpose' in the NHS context.  
25 The process also allowed us to explore staff ideas of what constitutes a 'good culture of care' and  
26 key 'signs and symptoms' of an organisation that has a good or poor culture of care and identify any  
27 additional items relevant to the concept. At the same time we were able to test the appropriateness,  
28 comprehension and clarity of items, and ease and acceptability of instructions and format of the  
29 initial questionnaire [20].  
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33 At this stage an initial tool of 37 items clustered under four domains was developed and a five point  
34 scale, ranging from not at all, to fully agree, was used to record participants' agreement with the  
35 items. The first domain comprised six items that explored issues surrounding resources and quality  
36 of care, facilities and equipment, staffing levels and views of workplace in terms of safety and  
37 quality. It included the Friends and Family Test as a reference item [27] and a question about action  
38 required to improve resources. The second domain comprised 10 items relating to management and  
39 support. Ten items in the third domain addressed development, staff involvement in decision  
40 making and overall culture in the organisation. The fourth domain included 11 items about staff  
41 meetings, teamwork and feedback and willingness of the organisation to learn from issues raised as  
42 well as incidents. For each domain a question was included about how much influence participants  
43 had to improve things, rated on a five point scale (from 'none', to 'a lot'). The initial tool is provided in  
44 full in the study's report [28].  
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48 The tool was then pilot tested in an acute NHS organization with a sample of registered nurses and  
49 midwives and healthcare support workers (n=467, 24% response rate). The aim of this pilot testing  
50 was to examine how well the tool performed and test the face validity and internal reliability of the  
51 items before wider testing. An initial factor analysis was conducted to reduce the number of items  
52 and further refine the tool. Results from this pilot study are reported in the study's report [28]. The  
53 items identified through this analysis were explored by the research team using an index-card-  
54 sorting exercise [29]. This involved asking the members of the research team to sort the items into  
55 categories. The items were printed separately on a small index card each member of the team  
56 sorting the cards into groups. Each then described what they saw as the common theme relating to  
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3 the cards in each group. Through this analysis and process, 30 items were retained in the  
4 questionnaire representing the concept of culture of care and these were classified under seven  
5 categories: engagement, empowerment, management and leadership, values, roles, resources and  
6 team. Participants were asked to rate the extent to which they agreed with each statement on a 5-  
7 point Likert scale (from strongly disagree to strongly agree). Before administering the final  
8 questionnaire to a wider sample a small number of NHS staff reviewed the items and the overall  
9 questionnaire to identify whether this provided an accurate representation of the overall culture in  
10 their workplace. The revised version of the tool is available in full in the study report [28].  
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### 13 14 15 **Questionnaire administration**

16 The retained items and revised tool was administered to a wider sample with the objective of  
17 examining how well the tool performed and how well the remaining items confirmed expectations  
18 of the psychometric properties of the tool. Below we present the main procedures we followed  
19 during this stage of development and testing the CoCB tool.  
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22 Administration of the questionnaire was undertaken in two further healthcare organisations. One  
23 was a mixed mental health care provider in London with community care and in-patient beds and  
24 the other was a predominately community healthcare organisation in a mixed urban/rural setting in  
25 the South of England. A total sample approach was adopted and an electronic version of the  
26 questionnaire was sent to the two organisations for distribution. We also forwarded 1500 paper  
27 copy questionnaires for each organisation to distribute to participants with less access to the  
28 electronic version. Questionnaires were distributed in June 2014 and data collection lasted for about  
29 eight weeks.  
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### 32 33 34 **Factor analysis and internal consistency assessment of the tool**

35 Data were coded and entered into a Microsoft Excel spreadsheet before being exported and  
36 analysed through IBM SPSS v21 statistical software. The demographic and employment  
37 characteristics of the participants were analysed descriptively and presented as numbers and  
38 percentages. As the measurement model might differ between types of organisations (e.g. acute,  
39 community and mental health) and the type of sample (e.g. clinical and non-clinical staff); an  
40 exploratory factor analysis was undertaken to identify whether the correlations between groups of  
41 observed items originated from one or more latent variables/factors in the data. Internal consistency  
42 was tested using Cronbach's coefficient  $\alpha$ . An Alpha reliability score above 0.7 is considered good  
43 [19, 29] therefore the target level of reliability was set at 0.70.  
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## 46 47 **RESULTS**

### 48 49 **Sample characteristics**

50 A total of 1705 staff working across mental health and community services in both clinical and non-  
51 clinical roles returned the questionnaires, organisation 1 (n=700, 25% response rate); organisation 2  
52 (n=1005, 24% response rate), of which 1698 were found complete and eligible for statistical analysis.  
53 Table one summarise the main profile and employment characteristics of participants. Overall four-  
54 in-five (82%, n=1237) respondents were female, with a large proportion of participants indicating  
55 being age 40 or older (Table 1). Almost all sample participants (93%, n=1459) spoke English as their  
56 first or main language. There were no difference in the demographic variable by organisation. Two-  
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thirds of staff across the two organisations worked full-time (68%, n=1074). By staff group there was a similar response profile within the two organizations and overall a larger proportion of nurses responded to the questionnaire compared to other groups of staff.

Table 1: Characteristics of participants

	Percentage (n)		
	Organisation 1 (n=700)	Organisation 2 (n=1005)	Overall (n=1705)
<b>Female</b>	<b>75</b>	<b>87</b>	<b>82</b>
<b>English as a first or main language</b>	<b>86</b>	<b>98</b>	<b>93</b>
<b>Age groups</b>			
<29	8	8	8
30-39	17	17	17
40-49	33	32	32
50-59	32	35	34
60 plus	9	8	8
<b>Staff group</b>			
Registered Nurses and Health Visiting Staff	30	34	32
Healthcare Assistant/Support Worker	13	5	8
Allied Health Professionals	25	25	25
Estates and facilities	2	4	3
Doctor/Dentist	5	3	4
Administrative and Clerical Staff	15	15	15
Central Functions and Corporate Services	4	6	5
Other	4	6	5
<b>Work setting</b>			
Community	36	45	41
Clinics/Outpatient Departments	13	14	14
Wards/Inpatient Units	27	7	15
Office	16	27	23
Other	9	7	7
<b>Employment status</b>			
Full-time	76	64	68
Part-time	25	36	32

### Structure of the tool

A factor analysis was performed on the 30 items to identify patterns of loading and extract underlying factors. Through this analysis four factors were identified. The composition of the factors was based on aggregating the scores for each item to create a single score for each factor and dividing this figure by the number of items in the CoCB tool to provide a meaningful average score. The relevant loading of items for each of the four factors is presented in Table 2.

The 12 items of the first sub scale were predominately related to the macro level elements within organisations that influence culture such as valuing employees, good communication within the organisation and visible leadership at the top level. Therefore, this subscale was considered to address wider 'organisational values'. Eleven items were loading to the second factor labelled as Team support. Items loading to this subscale were concerned with the 'meso level' of organisations

and included elements that described primarily team support relationships and management and development of employees within organisations. The remaining seven items concerned aspects of every day work at the micro level within organisations and these were loading to two factors. One sub-scale was mainly associated with four items describing social elements of work such as respect and social support between co-workers and the final three items were concerned with the ability of employees to do their job within the limits of time and resources available to them (Factor 4).

Table 2: Factor analysis and loading of items

Subscales and items	Loading
<b>Factor 1: Organisational Values (Macro Level)</b>	
The Trust listens to staff views	0.84
The Trust has a positive culture	0.77
There is strong leadership at the highest level in the Trust	0.75
I am able to influence how things are done in the Trust	0.74
I would recommend this Trust as a good place to work	0.70
I feel well informed about what is happening in the Trust	0.70
Staff successes are celebrated by the Trust	0.70
The Trust values the service we provide	0.69
Trust managers know how things really are	0.68
I am proud to work in this Trust	0.65
A positive culture is visible where I work	0.50
I get the training and development I need	0.40
<b>Factor 2: Team Support (Meso Level)</b>	
I feel well supported by my line manager	0.87
My line manager treats me with respect	0.84
My line manager gives me constructive feedback	0.83
My concerns are taken seriously by my line manager	0.81
I feel part of a well-managed team	0.60
I am kept well informed about what is going on in our team	0.52
I feel supported to develop my potential	0.50
I know who my line manager is	0.45
I am able to influence the way things are done in my team	0.44
I feel able to ask for help when I need it	0.44
Unacceptable behaviour is consistently tackled	0.40
<b>Factor 3: Relationships with colleagues (Micro Level)</b>	
The people I work with are friendly	0.81
When things get difficult, I can rely on my colleagues	0.79
I feel respected by my co-workers	0.76
I have positive role models where I work	0.56
<b>Factor 4: Job constrains (Micro Level)</b>	
I have sufficient time to do my job well	0.79
I have the resources I need to do a good job	0.72
I know exactly what is expected of me in my job	0.41

Reliability analyses were performed on each factor to identify how items loading to factors were considered a positive endorsement of the sub-scale. The results of these analyses are presented in Table 3. Cronbach's  $\alpha$  for the macro level (Factor 1: Organisational values) and meso level scales (Factor 2: Team support) were very high both at 0.93. Cronbach's  $\alpha$  for the micro level scales were: 0.84 (Factor 3: Relationships with colleagues) and 0.70 (Factor 4: Job constraints).

Table 3: Scale characteristics (Cronbach's coefficient  $\alpha$  reliability analysis)

	<b>Factor 1</b> Organisational values (Macro Level)	<b>Factor 2</b> Team support (Meso Level)	<b>Factor 3</b> Relationship with Colleagues (Micro Level)	<b>Factor 4</b> Job constrains (Micro Level)
Total Items loading	12	11	4	3
Alpha reliability	0.93	0.93	0.84	0.70
Number of valid responses	1568	1557	1617	1616
Mean score	3.7	3.2	4.0	3.3

Both sorting and factor analytical techniques were used to assess the content adequacy of the 30 items. The initial sorting of the items undertaken as part of the content adequacy process identified seven themes. The exploratory factor analysis did not confirm the distinction among the seven themes and instead the results yielded a four factor solution with factors indicating greater emphasis for organisational values and team and social support compared to job constraints. While this process of developing the tool provides confidence in the four factors identified, confirmatory factor analysis with another independent sample will provide a more rigorous test of the loading of items.

#### **Usefulness and added value of the tool to healthcare organisations**

The results from the CoCB were presented to the participating healthcare organisations through two independent reports detailing the findings from testing the tool in each organisation. Following the presentation of the results we invited key individuals from each organisation (n=5) to a follow up discussion to receive feedback on the usefulness of the tool and explore whether the tool met the dialogic and diagnostic premises of organisational development [12]. These individuals held strategic leadership positions within the two organisations with responsibilities for overseeing workforce and culture initiatives. These sessions were audio recorded and analysed thematically.

From a diagnostic perspective the consensus overall was that the CoCB tool resonated with other instruments used in the organisations, adding 'colour and depth' to them.

*"I think it is a much richer type of feedback than we get from the staff survey. We liked the logic and flow and could appreciate the sense of questions." (Organisational Development Manager, Organisation 2)*

*"...you get these action plans that come out of the staff surveys, but the detail is not the depth of information that we had with this, so this enables you to think more about why, then, and question, as oppose to, 'oh, right, we've got to do something on that area.'" (Senior Manager, Organisation 1)*

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3 The brevity of the tool, the fact that it was easy to complete and was perceived as targeting the right  
4 domains was appreciated by staff. Moreover, from a diagnostic perspective the tool was perceived  
5 by participants as useful in providing a reference point for them to gauge where they were on a  
6 cultural spectrum or journey.  
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8 From a dialogical perspective the fundamental value of the CoCB tool was reflected in the belief that  
9 'culture changes by talking about it' and the Barometer helped to surface issues for discussion. Data  
10 from the CoCB were seen as helpful in drilling into further detail or using it as a prompt for a 'quality  
11 conversation' for instance, with smaller, discrete groups, teams or where it was felt things were not  
12 quite right or when organisations felt the need to gauge the impact of changes they had made.  
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15 *'Culture ...does not change overnight and the fact that it is [the CoCB tool]  
16 a prompt to reflect upon has been I think a really powerful aspect of the  
17 tool.'* (Senior Executive, Organisation 2).  
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19 Finally, the commentary element of the tool was identified as providing a rich source of intelligence  
20 in helping to unpack notions of culture:  
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22 *"trying to understand what it is that matters to staff and what they feel  
23 about the place that they work in" (Workforce Transformation Lead,  
24 Organisation 2).*  
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26 It was also regarded as helpful in picking up on contradictions that might exist in organisations, as  
27 one senior manager observed:  
28

29 *"where you've got high scores for 'my manager treats me with respect',  
30 but then, 'Oh, I don't think my manager understands what the real world  
31 is like' (Leadership Project Manager, Organisation 1).*  
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33 Richer feedback via the CoCB in comparison to the staff survey helped to tease out the  
34 contradictions and take the quality of conversations at team level to the next stage.  
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## 38 DISCUSSION

39 Enabling the workforce to put the right things in place for patients is key to improving NHS  
40 performance in terms of quality and safety [30, 31] and this is the underlying principle of the CoCB as  
41 a tool. The challenge all organisations face is that there is not a one-size-fits-all solution as each  
42 individual is unique and will react differently to the challenges and values of an organisation. The  
43 CoCB can provide feedback from staff to enhance understanding of the factors that contribute to a  
44 culture lacking in care and safety. The CoCB appeared to perform well in meeting the gap in the  
45 literature which suggests that there is a need for tools to assess culture with a focus on formative  
46 diagnostic purposes to support reflexive practice [13]. The focus on the carers' views helps to  
47 comprehend the intersection of individual and organisational factors which distinguish the CoCB  
48 from other tools that prioritise either macro or micro levels. Moreover, using a dialogic approach to  
49 organisational development we created a tool that can be a resource to facilitate the involvement of  
50 frontline staff, at different levels and with different roles, in culture change initiatives.  
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55 The CoCB tool possesses several advantages over existing tools. During the development and testing  
56 of the tool we addressed concerns reported in the literature and from participants about the need  
57 for tools that are 'fit for purpose' [13] and are not onerous and time consuming to complete. One of  
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3 the major strengths of this study was the co-creation of the tool in collaboration with frontline staff  
4 providing care within NHS organisations. Three main sources of data and information were used to  
5 create the content of the tool namely a prototype tool developed by an expert panel in this field, a  
6 comprehensive literature review of the concept of culture of care and other tools used within  
7 healthcare, and input from interviews with staff working in healthcare organisations. Feedback from  
8 participants indicated that the data collected via the CoCB could provide extra intelligence about the  
9 jigsaw of what is happening within organisations. Participants indicated that the tool could enhance  
10 or complement current data collection methods used in hospital settings such as the Friends and  
11 Family Test and the Staff Survey to identify concerns about poor care. In this way providing a more  
12 comprehensive picture of patient and staff satisfaction with services provided. In addition,  
13 participants spoke of the struggle to make meaningful changes based on Staff Survey feedback alone  
14 and they shared that data collected via the CoCB alerted them to important contextual feedback and  
15 factors that in some cases were more useful in planning and developing action plans.  
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19 While the CoCB is a reliable tool and does seem to fill a niche for identifying and understanding  
20 some of the social processes at work within an organisation, we recognise that not all factors  
21 contributing to developing a caring culture may be included in the tool. We also acknowledge that  
22 not all the items may be relevant to all healthcare contexts and we recommend that testing and  
23 adaptation of these items may be necessary in future validations. Therefore, practitioners should  
24 use the CoCB in conjunction with other tools that can help organisations achieve culture change.  
25 Moreover, the sample of this testing was predominately nurse led, which may be a direct result of  
26 the proportion of nurse personnel working in the healthcare environments. However, cultures are  
27 co-created by all members of an organisation and this means that everyone is responsible for the  
28 welfare of the organisation as a whole. Further work is needed to test the reliability and validity of  
29 the questionnaire as well as engagement and uptake of the tool with other professional groups.  
30 While the tool has been developed in the context of the UK NHS, future work to adjust and test the  
31 tool in other organisations and countries will allow validation of the tool in a global context. Whilst  
32 the development of the tool was prompted by an interest in the contexts that may support the  
33 delivery of patient centric care, we have yet to examine if environments with more positive cultures  
34 of caring do indeed have care that is considered to be more patient centric – by staff or patients.  
35 Future work could investigate the hypothesized relationships between the culture of care and  
36 achievement of patient-centred care delivery, staff satisfaction, work-engagement and a reduction  
37 in work-related burnout as well as student learning.  
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43 Measuring and monitoring culture is a recurrent challenge in healthcare, the CoCB could act as a  
44 diagnostic, and practical tool for organisations to embrace as a first step in improvement work as  
45 well as a means of monitoring change over time. The tool has potential use in clinical practice and  
46 research. It is easy to administer, can be completed and analysed quickly providing timely feedback  
47 that can be used by organisations to identify areas of strength and weakness and help with the  
48 planning of continuous quality improvements or culture change initiatives that hospitals are  
49 undertaking. The wider applicability of the tool needs to be explored in future studies and its  
50 relevance for groups that may not have a direct role in care provision but who nevertheless are an  
51 important part of the organisation and whose feedback is important as culture is every one's  
52 business [23]. At the time of writing this paper a digital version of the tool is being developed.  
53 Further research should extend the current efforts to refine and evaluate the impact of the CoCB as  
54 necessary in order to develop interventions that can improve the culture of care in healthcare  
55 environments.  
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3 **Twitter** Follow Anne Marie Rafferty at @annemarieraffer, Julia Philippou at @julia\_philippou and  
4 Jane Ball at @JaneEBall

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7  
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### 17 18 19 **Contributors**

20  
21 AMR and JP are joint first authors. AMR was the principal investigator and with JB conceived and  
22 designed the study. AMR, JP, JF, GP and JB all contributed to the collection, analysis, or  
23 interpretation of data for the work. JP developed the first draft of the paper and all the authors  
24 contributed to different sections and revised the paper critically for intellectual content. All authors  
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### 36 37 **Competing interests**

38  
39 None declared.

### 40 41 42 **Data sharing statement**

43  
44 Other data relating to the development of the CoCB tool are available by emailing AMR,  
45 anne\_marie.rafferty@kcl.ac.uk.

### 46 47 48 **Ethical approval**

49  
50 The project has been approved by the Psychiatry, Nursing and Midwifery Research Ethics  
51 Subcommittee (PNM RESC) at King's College London (project no. PNM/13/14-153) and relevant  
52 Research & Development (R&D) departments of participating organizations.

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Figure 1: Process of developing and testing the Culture of Care Barometer (CoCB) tool

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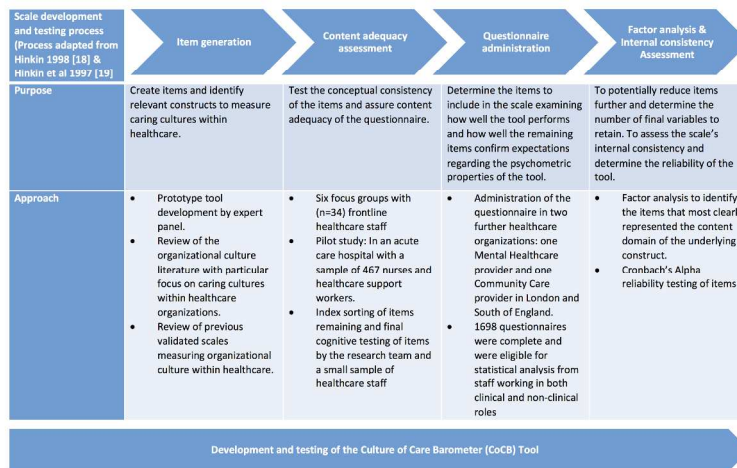


Figure 1: Process of developing and testing the Culture of Care Barometer (CoCB) tool

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