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Original Article

Development and Testing of the Context Assessment Index (CAI)

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ABSTRACT

Aim: To test the psychometric properties of the Context Assessment Index (CAI).

Background: We used the Promoting Action on Research Implementation in Health Services Framework (PARIHS) as the theoretical framework for the study. The framework shows the successful implementation of evidence in practice as dependent on the inter-relationship of the nature of the evidence, the quality of the context, and expert facilitation. However, a comprehensive method of assessing context has not yet been available.

Methods: A five-stage instrument development and testing methodology was used. Principal components analysis, exploratory factor analysis, and expert panel feedback were used to develop and refine the CAI model. The model was further tested for psychometric properties of internal consistency and test–retest scores. Telephone interviews were conducted with expert nurses to gauge the usability of the instrument. These stages of development and testing resulted in a final 37-item, five-factor CAI model.

Findings: This 37-item model was accepted as a reasonable explanation of the data. The measures of homogeneity were calculated for each of the five factors to measure internal reliability. The Cronbach's alpha score for the complete questionnaire was estimated at 0.93. All five factors achieved a satisfactory estimated level of internal consistency in scoring, ranging from 0.78 to 0.91. Test–retest scores indicate reliability of the findings, and the feedback from focus group participants suggests that the instrument has practical utility.

Conclusions: The CAI provides clinicians with the means to assess and understand the context in which they work and the effect this has on using evidence in practice.

KEYWORDS instrument development, context assessment index [CAI], context, PARIHS framework

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INTRODUCTION

In this article, the second phase of a 2-year study is presented. The focus is on developing and testing an instrument (Context Assessment Index [CAI]) for assessing the readiness of a practice context for research utilisation. Phase 1 of the study (item generation) has been published elsewhere (Wright et al. 2007). In Phase 1, an in-depth case study design set within the Promoting Action on Research Implementation in Health Services (PARIHS) framework (Kitson et al. 1998; Rycroft-Malone et al. 2002; Rycroft-Malone et al. 2004) was utilised to identify factors that enhance and hinder evidence-based care. At the end of Phase 1, the items for inclusion in the CAI were identified. The focus of the study was on evidence-based continence care as the "trigger condition" to gain an in-depth understanding of the practice context. Continence was chosen because it had been identified by clinicians and service

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leaders working in older people rehabilitation settings as a problematic area of practice — one in which a large body of evidence existed but was rarely used in practice. The process of engaging with clinicians and determining the quality of continence practices is published separately (Coffey et al. 2007).

BACKGROUND

Contemporary developments in evidence translation and utilisation show that the provision of evidence of best practice alone does not directly lead to changes in clinicians' practice (Rycroft-Malone et al. 2004; Wallin et al. 2006; Cummings et al. 2007). The issue is far more complex, and many factors have been debated within the literature to explain the gap between evidence of best practice and the reality of what takes place in practice. These include clinicians' attitudes and perceptions of research utilisation (Parahoo 1999; Estabrooks et al. 2007) and clinicians' ability to understand and interpret research (McCaughan et al. 2002; Thompson et al. 2007). Rycroft-Malone et al. (2004) identified additional barriers including a lack of organisational support, the relevance of research to the clinical setting, the approach to collaboration and leadership in the implementation process, the limited availability of resources and access to evidence as factors contributing to knowledge use in practice. Kitson and colleagues (Kitson et al. 1998; Harvey et al. 2002; McCormack et al. 2002; Rycroft-Malone et al. 2002; Rycroft-Malone et al. 2003) developed the PARIHS framework as a model for understanding the significance of differing factors in knowledge use in practice.

The PARIHS framework indicates that the successful implementation of evidence into practice is dependent on the inter-relationship of three key constructs: the nature of the evidence (including research, clinical experience, and patients' preferences), the quality of the context (including culture, leadership, and evaluation), and expert facilitation (including the characteristics and role of the facilitator and the style of facilitation used) (Rycroft-Malone et al. 2002). Each of these constructs has characteristics arranged along a continuum of weak to strong. For successful implementation, the evidence should be robust, the context receptive to change, and appropriate facilitation used (Kitson et al. 1998). These constructs and characteristics are discussed in detail by Rycroft-Malone et al. (2002), Wright et al. (2007), and Kitson et al. (2008).

The study reported in this article was focused on the "context" construct of the PARIHS framework. Context is defined by McCormack et al. (2002, p. 96) as the "environment or setting in which people receive health care services." The environment in health care is rarely straightforward, but can be seen as constantly changing and with many diverse cultures operating at different levels in the organisation. The context construct has three characteristics: culture, leadership, and evaluation of effectiveness. McCormack et al. (2002), Rycroft-Malone et al. (2004), Greenhalgh et al. (2004), Meijers et al. (2006), and Wallin et al. (2006) have all suggested that practice context has a significant effect on the uptake and use of evidence in practice, but as yet, little research has been undertaken to understand the nature of this effect.

In this article, we describe the results of a study that was focused on developing an instrument to evaluate the context of practice and its readiness to implement evidence into practice. The article shows the five-stage methodological approach adopted to develop and test the psychometric properties of the instrument and the evaluation of its ease of use in practice.

Aim, Ethical Considerations, and Methodology

The aim of this study was to test the psychometric properties of the CAI. Ethical approval was given by the local ethics committee in Northern Ireland and the Health Research Board ethics committee in the Republic of Ireland. Informed consent was gained from all study participants.

Methodology

The study was undertaken using a five-stage instrument development and testing design:

- Stage 1: development of statements for inclusion in the CAI.
- Stage 2: testing for face and content validity.
- Stage 3: testing the factor structure and psychometric properties of the instrument through a national survey.
- Stage 4: testing the reliability of the instrument over time.
- Stage 5: evaluating the usability of the instrument in practice.

Stage 1: Development of Statements

The first stage in the development of the CAI was the identification of statements from the data analysed in Phase 1 (see Wright et al. 2007 for details of the Phase 1 study). Negative and positive statements arose from the data analysis. These were listed in two columns, indicating either a strong or a weak context. The wording of the statements needed to show that the CAI was a self-report instrument.

Once a list of items had been developed for each of the characteristics (culture, leadership, and evaluation), repetitive items were identified and amalgamated or removed. This extensive list of items was reviewed by the project team to eliminate those that were clearly repetitive across the three characteristics. This consensus process reduced the items from an original list of approximately 300 to 88. Because we had chosen "continence" as our trigger condition as a focus for the development of the instrument, it was necessary to re-word the list of items in order to remove the focus on continence. A Likert scale with "strongly agree," "agree," "disagree," and "strongly disagree" was developed.

Stage 2: Testing for Face and Content Validity

The face and content validity of the CAI were tested using a combination of qualitative and quantitative methods. Initially, the 88 items of the CAI were examined by an expert panel of eight continence nurses (because continence was our trigger condition) and six practice development nurses drawn from databases of the Royal College of Nursing (UK), The Developing Practice Network (UK), and the National Council for Nursing and Midwifery (Republic of Ireland). The continence nurses were selected from a list derived from the above databases, using the inclusion criteria of (1) a continence nurse specialist in one of the identified databases, and (2) the practice is in a UK or Republic of Ireland health care setting.

Administrators of the database sent e-mails to all continence nurse specialists on the database to ask for volunteers to test the CAI. Eight nurses responded. These eight continence nurse specialists were representative of all four countries of the UK and the Republic of Ireland. The aim was to test the clarity, specificity, and comprehensiveness of the CAI. The CAI and a feedback sheet were e-mailed to the nurses, who were asked to respond to a series of questions. The feedback was grouped to identify three themes: clarity of the statements, layout of the CAI, and clarity of terminology. This feedback was consistent, indicating statements that were unclear and ambiguous (e.g., who was referred to by the terms "manager" or "health care professional"). They revealed repetition in some statements for each of the characteristics from the context framework. The CAI took 20 minutes on average to complete, which was deemed to be acceptable by the respondents. Suggested amendments to the terminology and instrument structure were used to re-draft the instrument, resulting in 83 items.

Stage 3: Testing the Factor Structure and Psychometric Properties

All registered nurses providing nonacute care for older people (such as those working in community hospitals, postacute care, day hospitals, stroke units, and orthopaedic rehabilitation), in Northern Ireland and the Southern Area Health Service Executive of the Republic of Ireland were invited to complete the CAI. The nurse manager for each of these units was contacted, and the number of registered nurses employed was determined. This resulted in a sample of 672 RNs in Northern Ireland and 243 RNs in the Republic of Ireland ($n = 915$) from 27 different sites.

The number of nurses at each individual site ranged from 5 to 57. A representative was nominated from each participating site to help distribute a questionnaire pack containing an information sheet, the CAI, and a consent form. Each representative was provided with distribution instructions and was asked to return all completed questionnaire packs to the research team. In total, 460 (50.27%) were returned: 192 (44%) from Northern Ireland and 268 (56%) from the Republic of Ireland.

The procedures outlined by Kline (1994) and Hair et al. (1998) were used with the objective of reducing the 83 items to reflect a strong factor structure. This procedure involved an initial analysis of all items using a principle components analysis in order to identify the number of factors in the questionnaire. The number of factors extracted from the data was determined by Eigenvalues over 1. The 83 items of the CAI were subjected to an exploratory factor analysis to ensure that the strongest factor structure would emerge from the data. A maximum likelihood analysis was used to extract the factor structures from the data. A process of varimax-rotated extraction was used to ensure discreet factor structures. The number of factors to be extracted was set at 20, based on the findings from the principles component analysis. This produced a factor matrix accounting for 64.27% of the variance within the data. The 20 factors extracted from the data were reduced using a criterion of item reduction based on two principles:

1 A factor loading of 0.4 was set using a power analysis based on the sample size and significance criteria of $p = 0.05$, a power level of 0.80, and standard errors assumed to be twice those of conventional correlation coefficients (Solo Power Analysis, BMDP Statistical Software Inc., Los Angeles, CA, 1993).
2 At least two or more items per factor.

Using this process, 32 items were removed from the original data set, leaving 51 items that were categorised into seven factors. The researchers labeled the factors and identified items within them that were considered "misplaced" (Hair et al. 1998). This process helped extract one "rogue" item prior to the next round of factor analysis. The seven factors identified by the researchers were:

Factor 1 – Collaborative practice
Factor 2 – Evidence-informed practice
Factor 3 – Respect for the person
Factor 4 – Critical engagement
Factor 5 – Routinised care
Factor 6 – Performance and experience
Factor 7 – Resources

The modified data set (50 items) was again analysed using the varimax extraction, with the number of factors to be extracted set to 7. This process replicated the factor structure of the previous analysis, explaining 52.19% of the data variance. Using the aforementioned criteria to examine the data, an additional two items were removed. Factor 7 "Resources" was also deleted because it did not comprise two or more items with factor loadings above 0.4, resulting in a six-factor model.

The six-factor model was distributed to an expert panel of seven members (four of the project team and three senior researchers from the collaborating universities) in order to seek agreement on construct titles and items. The expert panel was asked to examine items within each construct based on their factor loading scores, agree on the composition of each construct, and finalise the factor titles. Factor 6 was deemed to be redundant because it did not explain anything relevant. The expert panel reached consensus on a five-factor, 44-item model (see factor items contained in Table 1), explaining 48.08% of the data variance, with the following corresponding factor titles:

1 Collaborative practice
2 Evidence-informed practice
3 Respect for persons
4 Practice boundaries
5 Evaluation

The measures of homogeneity were calculated for each of the five factors to measure their internal reliability. The Cronbach's alpha score for the complete questionnaire was estimated at 0.93. All five factors achieved a satisfactory level of internal consistency in scoring (see factor labels, Table 1).

The item scores of each of the factors were summed for all respondents to produce a respondents' factor score and divided by the number of items to produce a mean score on the factor for each respondent. The overall mean factor scores are reported in Table 1. Scoring ranged from 1 (strongly agree), to 4 (strongly disagree). Scores of 1.0–2.5 indicate a high degree of agreement with the factor, and scores >2.5 suggest higher levels of disagreement.

The mean and standard deviation scores for Factor 1 (Collaborative practice) indicated a level of agreement with the presence of collaborative practice in the clinical setting, and the standard deviation scores indicated that the majority of respondents supported this view (see mean scores, Table 1); likewise with the factors "Evidence-informed practice," "Respect for persons," and "Practice boundaries." Factor 5 (Evaluation) was scored with a sense of ambivalence toward the factor being present in the work place. The mean scores indicated neither agreement nor disagreement with the presence of the factor.

Stage 4: Testing the Reliability of the Instrument Over Time

A purposive sample of 23 respondents completed the CAI on two occasions (2 weeks apart). The nurses were selected based on their accessibility to the project team and were drawn from both Northern Ireland ($n = 10$) and the Republic of Ireland ($n = 13$). The respondents were invited to complete the CAI and to return the completed instruments via a self-addressed envelope to the research team.

This process was repeated 2 weeks later. A period of 2 weeks was selected to remove the possibility of respondents remembering their initial answers, but short enough so that the culture of the organisation did not change dramatically. The questionnaires were bar-coded, with unique identifiers for each respondent, thus ensuring that responses at Times 1 and 2 could be compared. The percentage agreement scores for items (and tests of reliability) were cross-tabulated. Factor mean scores for both occasions were computed, and factor correlation scores for the sample were generated. The mean scores for all five factors were plotted on a single graph, and a line of best fit was generated.

The percentage agreements for the item scores of the CAI were generally good. Given the 4-point Likert scale of possible responses, there was an estimated 25% chance that a respondent could randomly select the same response at Time 2 as at Time 1; therefore, any percentage agreement greater than 25% is higher than chance alone. All 44 items were scored higher than chance alone (see percentage agreement in Table 1). Two-thirds of the items were scored higher than 60% agreement (63%), with 30% having agreement levels of 70% or higher. Seven items had agreement levels of 55% or less (see shaded items in Table 1).

To improve the correlation scores of the factors, seven items with a percentage agreement score of 55% or less were identified for removal from the analysis (see shaded items in Table 1). Factor 1 (Collaborative practice) was not significant at a statistical level and had a weak measure of association (0.1). An examination of the items in this construct showed that four of the 13 items that comprise the construct had percentage agreement scores below 55% and the lowest scored agreement item (36%) related to collaborative practice. These four items were removed from the analysis and this increased the estimated correlation score to 0.43, an acceptable correlation score at a statistically significant level (see Table 1, Time 2). One item in Factor 3 had a 52% agreement and was thus removed. This produced a stronger correlation of 0.59 (Spearman's Rho $p = 0.000$). Factor 4 (Practice boundaries) had one item with scoring less than 55% removed, with the correlations increasing to 0.50 ($p = 0.000$). One item was removed from

TABLE 1

Factors and corresponding item scores (Cronbach's alpha, mean, standard deviation, and percentage agreement) for the five-factor model of the Context Assessment Index

FACTORS AND ITEMS	FACTOR SCORE	MEAN (SD)	PERCENT AGREEMENT
Factor 1 – Collaborative practice (Cronbach's alpha 0.91)		**2.28 (0.45)**	
A proactive approach to care is taken	0.52		70
HCPs and patients have access to appropriate diagnostic methods and equipment	0.62		36
HCPs and patients work as partners providing individual patient care	0.69		77
HCPs are empowered to influence external factors affecting care	0.48		52
HCPs provide opportunities for patients to participate in decisions about their own care	0.55		68
Patients have choice in assessing, planning, and evaluating their care and treatment	0.61		61
Patients are encouraged to be active participants in their own care	0.49		64
Feedback is a two-way process between patients and HCP	0.48		55
Patients are encouraged to participate in feedback on care, culture, and systems	0.53		87
Organisational structures and processes are clear to patients HCPs and HCSWs	0.48		52
HCPs in the MDT have equal authority in decision making	0.49		59
Discussions are planned between HCPs and patients	0.43		59
Clinical nurse leaders create an environment conductive to the development and sharing of ideas	0.40		68
Factor 2 – Evidence-informed practice (Cronbach's alpha 0.88)		**2.24 (0.48)**	
All aspects of care/treatment are based on evidence of best practice	0.50		78
The development of staff expertise is viewed as a priority by nurse leaders	0.56		65
Evidence-based knowledge on care is available to staff	0.48		83
Guidelines/protocols based on evidence of best practice (patient experience, clinical experience, and research practice) are available	0.59		78
Audit and/or research findings are used to develop practice	0.48		65
Resources are available to provide evidence-based care	0.57		70
Education is a priority	0.55		61
The organisation is non-hierarchical	0.47		57
The management structure is democratic and inclusive	0.40		73
HCPs have the opportunity to consult with specialists	0.48		65
Structured programmes of education are available to all HCPs	0.48		65
Factor 3 – Respect for persons (Cronbach's alpha 0.81)		**1.92 (0.38)**	
The nurse leader acts as a role model of good practice	0.44		61
HCPs share common goals and objectives about patient care	0.42		87
Regard is given to the patients psychological/spiritual well-being	0.55		52
There are good working relations between clinical and non-clinical staff	0.53		59
Staff welcome and accept cultural diversity	0.41		65
There is high regard for patients' privacy and dignity	0.58		57
Decisions on care and management are clearly documented by all staff	0.46		56
Care is based on a comprehensive assessment	0.47		83
Factor 4 – Practice boundaries (Cronbach's alpha 0.8)		**2.05 (0.44)**	
Personal and professional boundaries among HCPs are maintained	0.41		64
HCPs feel empowered to develop practice	0.61		61
Staff have explicit understanding of their own attitudes and beliefs toward the provision of care	0.45		55
HCPs and HCSWs understand each others' role	0.52		74
Structured and open channels of communication exist between HCPs, patients/carers, and organisation managers	0.45		41
Challenges to practice are supported and encouraged by nurse leaders and nurse managers	0.44		65
Organisational management has high regard for staff autonomy	0.53		65
Factor 5- Evaluation (Cronbach's alpha 0.78)		**2.50 (0.52)**	
Staff receive feedback on the outcomes of complaints	0.47		57
Performance measures (e.g., staff turnover, length of stay, etc.) are in place	0.51		45
A staff performance review process is in place that enables reflection on practice and goal setting and is regularly reviewed	0.52		73
Staff use reflective processes (e.g., action learning, clinical supervision, or reflective diaries) to evaluate and develop practice	0.62		70
Appropriate information (large written print, tapes, etc.) is accessible to patients	0.48		59

Note: Shaded items are those that had agreement levels of 55% or less during stage 4 of the study (reliability testing).

TABLE 2
Correlation between construct scores at Time 1 and Time 2

CONSTRUCT	TIME 1 SPEARMAN'S RHO	TIME 2 SPEARMAN'S RHO
Collaborative practice	0.1	0.43**
Evidence-informed practice	0.82**	0.82**
Respect for the person	0.53**	0.59**
Practice boundaries	0.38*	0.50**
Evaluation	0.53**	0.36*

*p = 0.05; **p > 0.001.

factor 5 (Evaluation), resulting in a reduction in the correlation score to 0.36, but still at a statistically significant level. In total, seven items were removed.

The amendments resulted in factors that had acceptable correlations. The modified correlation scores were much higher than Time 1 as shown in Table 2, Time 2. The paired factor scores for each of the five factors were put in a scatterplot, producing 115 pairs of responses (23 times 5) (Figure). A line of best fit was determined by a calculation of the least summed square of residuals from the fitted line. This produced a Spearman's Rho correlation of 0.56 ($p = 0.000$) between both time points at a significance level of 0.001. The line of best fit indicates a strong relationship between the two time points. The finalised CAI is shown in Table 3.

Stage 5: Ascertaining the Usability of the CAI

Nurse managers at each site (23 in total) who had taken part in Stage 4 of the study were invited to participate in a telephone interview to discuss the usability of the CAI. A schedule was sent before the interview, and each interview lasted approximately 20 minutes. The interviewer wrote responses as the person was speaking and read them back at the end of the interview to ensure they had been noted correctly.

Most interviewees did not have a problem in understanding the statements in the CAI and stated that it was user-friendly. Two had been annoyed by some repetition: "something (the statements) asked in a different way," although one person thought this made them read each statement carefully. One was not clear about a statement that related to a hierarchical management structure. The language of the CAI was considered easy to understand, and it was helpful to be given a guide to abbreviations at the outset. An important point was made about the difference in answers that might be provided by managers and staff, inasmuch as managers might believe they are doing a good job while practitioners might believe differently. Another participant stated, "staff nurses may not be in a position to answer some of the questions" and suggested that the tool was more suited to nurse managers.

The time taken to complete the CAI was estimated to be 10–20 minutes, and no one expressed difficulty with this. One said that if she used it regularly she would be able to complete it even more quickly.

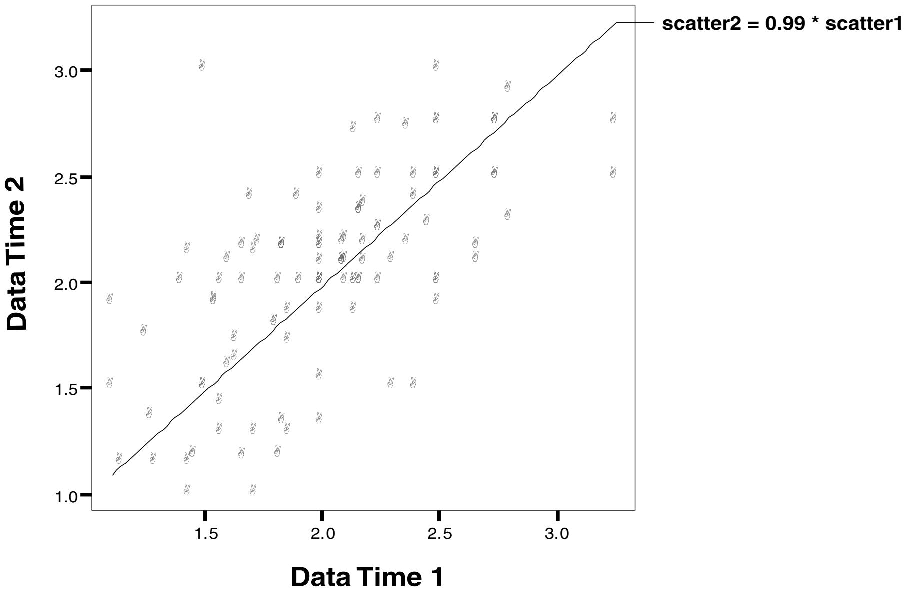

Figure. Scatterplot of responses from Time 1 and Time 2 with a line of best fit.

TABLE 3
The finalized Context Assessment Index (CAI)

	FOR EACH OF THE FOLLOWING STATEMENTS, PLEASE PUT A CROSS IN ONE BOX ONLY. SA- STRONGLY AGREE; A -AGREE; D - DISAGREE; SD -STRONGLY DISAGREE	SA	A	D	SD
01	Personal and professional boundaries between HCPs[a] are maintained	☐	☐	☐	☐
02	Decisions on care and management are clearly documented by all staff	☐	☐	☐	☐
03	A proactive approach to care is taken	☐	☐	☐	☐
04	All aspects of care/treatment are based on evidence of best practice	☐	☐	☐	☐
05	The nurse leader acts as a role model of good practice	☐	☐	☐	☐
06	HCPs provide opportunities for patients to participate in decisions about their own care	☐	☐	☐	☐
07	Education is a priority	☐	☐	☐	☐
08	There are good working relations between clinical and non-clinical staff	☐	☐	☐	☐
09	Staff receive feedback on the outcomes of complaints	☐	☐	☐	☐
10	HCPs in the MDT have equal authority in decision making[b]	☐	☐	☐	☐
11	Audit and/or research findings are used to develop practice	☐	☐	☐	☐
12	A staff performance review process is in place that enables reflection on practice and goal setting and is regularly reviewed	☐	☐	☐	☐
13	Staff have explicit understanding of their own attitudes and beliefs toward the provision of care	☐	☐	☐	☐
14	Patients are encouraged to be active participants in their own care	☐	☐	☐	☐
15	There is high regard for patients privacy and dignity	☐	☐	☐	☐
16	HCPs and health care support workers understand each others' role	☐	☐	☐	☐
17	The management structure is democratic and inclusive	☐	☐	☐	☐
18	Appropriate information (large written print, tapes, etc.) is accessible to patients	☐	☐	☐	☐
19	HCPs and patients work as partners, providing individual patient care	☐	☐	☐	☐
20	Care is based on a comprehensive assessment	☐	☐	☐	☐
21	Challenges to practice are supported and encouraged by nurse leaders and nurse managers	☐	☐	☐	☐
22	Discussions are planned between HCPs and patients	☐	☐	☐	☐
23	The development of staff expertise is viewed as a priority by nurse leaders	☐	☐	☐	☐
24	Staff use reflective processes (e.g., action learning, clinical supervision, or reflective diaries) to evaluate and develop practice	☐	☐	☐	☐
25	Organisational management has high regard for staff autonomy	☐	☐	☐	☐
26	Staff welcome and accept cultural diversity	☐	☐	☐	☐
27	Evidence-based knowledge on care is available to staff	☐	☐	☐	☐
28	Patients have choice in assessing, planning, and evaluating their care and treatment	☐	☐	☐	☐
29	HCPs have the opportunity to consult with specialists	☐	☐	☐	☐
30	HCPs feel empowered to develop practice	☐	☐	☐	☐
31	Clinical nurse leaders create an environment conducive to the development and sharing of ideas	☐	☐	☐	☐
32	Guidelines and protocols based on evidence of best practice (patient experience, clinical experience, and research) are available	☐	☐	☐	☐
33	Patients are encouraged to participate in feedback on care, culture, and systems	☐	☐	☐	☐
34	Resources are available to provide evidence-based care	☐	☐	☐	☐
35	The organisation is non-hierarchical	☐	☐	☐	☐
36	HCPs share common goals and objectives about patient care	☐	☐	☐	☐
37	Structured programmes of education are available to all HCPs	☐	☐	☐	☐

[a] Health care practitioners; [b] Multidisciplinary team.

DISCUSSION

The PARIHS framework was developed following the retrospective analysis of various research and development projects (Kitson et al. 1998). The framework attempts to indicate the complex factors involved in implementing research into practice. This study was focused on developing a tool to assess the practice context. Because of the complex nature of the context (McCormack et al. 2002; Greenhalgh et al. 2004; Meijers et al. 2006; Wallin et al. 2006; Thompson et al. 2007), which has been compared to trying to "catch a cloud" (Canadian Health Services Research Foundation 2005, p. 13), it is usually invisible to practitioners. By developing the CAI, we have begun the process of providing a means of assisting practitioners in assessing and understanding the context in which they work and the effect this has on implementing evidence into practice.

The CAI shows evidence of acceptable validity and reliability at this stage of its development. However, further development and testing is required in order to address the limitations of this study, in particular, sample size and cultural specificity.

In Stage 3 of this study (testing the factor structure and psychometric properties of the instrument), a sample of 915 was selected, but a response rate of 460 (50.27%) was achieved. Whilst the sample is representative of nurses working in rehabilitation settings, in reality, it is not a representative sample of the diversity of health care specialties and contexts. Whilst the CAI has been developed with an emphasis on evidence-informed practice in the context of continence promotion, its design lends itself to use in a variety of settings and with a focus on a variety of clinical topics. In this study, we have not attempted to evaluate the validity, reliability, and usability of the CAI with different clinical topics nor in care settings other than older people rehabilitation settings. Older people care settings have specific contextual characteristics, such as skill-mix ratios, models of care delivery, and practice focus.

The feedback from the practitioners in the usability study included suggestions that the CAI could be of value in different health care settings and with different clinical topics, such as wound care or pain management. The CAI could be used as a generic tool in different settings, but further research would be needed to determine its validity, reliability, and usability in other settings and with different clinical topics. In order for the CAI to be generalisable, there is a need for further testing of its constructs and items. Focusing on a range of health care settings and specialties would assist in this process.

The CAI has not been tested for cultural diversity. The instrument has been developed in Ireland across two health care cultures (Republic of Ireland and Northern Ireland). Whilst these are two separate cultures, there are many similarities across the two jurisdictions, as indicated in the data in Phase 1 of the study (Wright et al. 2007). Because culture is a key characteristic of context, a collaborative international study to test the cultural specificity of the instrument would add to its international relevance.

Whilst more work is needed to further test the instrument, the CAI appeared to be useful for helping practitioners reflect on their practice. However, as yet, there is no process in place for practitioners to formally analyse the outcome of the CAI and integrate these outcomes into practice. The addition of an interpretative framework for practitioners to analyse the CAI findings would further add to its value in developing practice.

The CAI has the potential to bring about practice changes, but as yet, it has not been applied in practice. Implementing the CAI in clinical settings and evaluating its effect on developing practice will be important. Finally, the CAI has the potential to contribute to the growing body of international research for exploring further the meaning of context and its effect on knowledge transfer and utilisation.

CONCLUSIONS

In general, the CAI has been shown to have evidence of acceptable reliability and validity, and that it has utility among practitioners. This study was focused on developing a tool to assess the practice context. This was the first study to indicate, in practice, the theoretical elements of context from the PARIHS framework. The aim was not to test the framework but to develop a tool to enable context to be evaluated. The constructs (collaborative practice, evidence-informed practice, respect for persons, practice boundaries, and evaluation) and items from the development of the CAI provide a detailed analysis of the PARIHS context framework. Practice context is recognised internationally as a key consideration in knowledge translation and research utilisation. Whilst this study has begun the process for understanding the elements of context and how they can be evaluated, more research is needed to develop and further test these elements in a variety of practice contexts and evaluate its effect on determining the focus of practice developments.

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