Journal of Community Medicine and Primary Health Care. 29 (1) 18-34

JOURNAL OF COMMUNITY MEDICINE AND PRIMARY HEALTH CARE

Questionnaires for Patient Evaluation of Primary Health Care: A Systematic Review and Implications for the Nigerian Practice Setting

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Key words:

Systematic review,

questionnaire development,

primary health care,

patient evaluation

ABSTRACT

Background: An increasing number of questionnaires have been developed for patient evaluation of primary health care (PHC) but these are mostly designed for developed countries' settings.
Aim: To review the development, contents, measurement properties of published questionnaires for patient evaluation of PHC and draw implications for the Nigerian practice setting.
Design: A systematic review
Data Sources: Systematic search for worldwide published literature from Medline (1950 to 2014), CINAHL Plus, EMBASE, and PsycINFO databases were concluded on the 30th of April 2014.
Study eligibility criteria: Studies included in this review reported the development and/or validation of a questionnaire for patients' evaluation of primary (health) care.
Data extraction: Data was extracted with a template prepared in accordance with the review objectives. Template had article identifier, setting, context, developmental processes, contents (domains, items, and scales), potential utility and measurement properties (reliability, validity, and acceptability) were extracted and narrative reports were presented.
Findings: Twenty-three studies met all the eligibility criteria for inclusion. The majority were published after 2000 (83%), developed in Europe (61%), and mostly in the United Kingdom (48%). Only 2 (9%) of these questionnaires were developed in countries in Africa. Majority (65%) of these questionnaires were developed through the cycle, contained between 20 – 40 core items (44%) and had bipolar response scale (52%) The most commonly reported measurement index was the Cronbach's alpha (74%) and contents of 58% of questionnaires had scope for potential evaluation of the continuum of structure, process and outcome dimensions of quality. There was no published report on the development or validation of any of these questionnaires for the Nigerian practice setting.
Conclusion: Most questionnaires were developed to suit specific context and practice setting. The wholesome transfer of such questionnaire across cultural and practice setting remains a difficult issue. The limited application of existing questionnaires in the Nigerian PHC setting could be a justification for the development of a contextually sound and conceptually relevant measure for local use.

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INTRODUCTION

There had been an increase in the use of patients for the evaluation of health care globally and in Nigeria in recent times." This is likely because of current emphasis on patient centred health care and the increasing demand accountability in health care delivery especially primary health care (PHC).

Patients' evaluations of health care are their views or judgments on aspects or entire medical care and this is a common way they can participate in health care delivery. Most studies on patient evaluation of health care are reported as their satisfaction or experience with health care. Both the experiences and satisfaction of patients over health care could be the reflection of the extent of fulfillment of their desires or expectations. An intense argument is that since patients' satisfaction or experiences studies are in actual sense, their personal evaluations of health care, then 'patient evaluation' and not just 'patient satisfaction' or 'patient experience' serves a better representation of the process of judging the quality of care from the perspective of the patients."

Patients and caregivers' views on health care are important in defining quality and undertaking

quality improvement. In fact the notion of quality is less meaningful, if the views of patients who are impacted by the processes in health care are not taken into account. The involvement of patients in the evaluation of health care is underpinned by current standards in ethics, philosophy, law and regulation, politics and evidence of practical benefits Additionally, the greater participation of patients in health care evaluation have strong influence on the attainment of high quality care at relatively lower cost.

One common reason researchers and practitioners are hesitant using patient to evaluate health care is the lack of valid and reliable scales for such evaluation. Understandably, evaluations made by individual patients can be influenced by factors that could result in spurious findings. For example, disputable high or low levels of patient's satisfaction reported from studies have link to a number of factors including - measurement errors, social desirability, patients' reluctance to express negative opinions, wordings of the questions, 'personal identity threat' and lack of standardized data collection approach. These limitations underscore the need for improving the strength, validity and reliability of the measurement methods. In a recent review of studies on patient evaluation of PHC in Sub Saharan Africa, only 25% of quantitative studies reported the use of valid and reliable questionnaire for their studies."

There are published guides for the development and validation of patients' self-report questionnaires. Detailed guideline for the development and use of patients' self-report questionnaires are provided by Streiner et al., and the report of Hinkin. These are additional reports by Fitzpatric et al., and Terwee el al., that are relevant for the critical evaluation of patients' self-report questionnaires. Adherence to recommended guideline for questionnaire development is pertinent especially when dealing with latent or subjective psychological constructs like patient experience or satisfaction. It is equally important to ensure the use of questionnaires that are reliable (producing consistent results); valid (measuring what it is supposed to) and show transferability (measure the same construct when applied to different patient groups) when measuring such latent constructs.

The development of patients' self-report questionnaires traditionally follows the application of an iterative process underpinned by sound scientific methodology. The involvement of the patients during the development is critical for a true patient self-report questionnaire. Questionnaire developers may decide on the application of more extensive processes with greater patient involvement or shorter processes that rely more on subject experts. Each phase in the development of the questionnaire may require different samples from the population where questionnaire would be use. However, the series and sequence of research during questionnaire development can be arbitrarily grouped into three sequential and coherent stages - item generation (from inductive, deductive or combination), questionnaire refinement (pilots, content validation, translation) and validation (determination of the acceptability, reliability and validity).

The purpose of this paper is to systematically identify and review the development and contents of available patients' self-report questionnaires for the evaluation of primary health care globally. The reviews also seek to know how appropriate these questionnaires are for use in the Nigerian practice setting.

Essentially, the review applied a narrative approach to provide answers to the following review questions: (a) Which settings and contexts were these questionnaires for patient evaluation of PHC developed? (b) What processes were involved in the development of these questionnaires? (c) What are the contents of these questionnaires? (d) What are the measurement properties of these questionnaires? (e) What dimension(s) of quality can the questionnaires be used to evaluate? (f) How suitable are the available questionnaires for use in Nigeria?

METHODS

Data sources:

Full articles identified for possible inclusion were retrieved by searches from various electronic

databases. References of retrieved articles were also screened for additional studies relevant to the review. The electronic databases used for the systematic search were Medline via OVID (1950 to April Week 1, 2014), (The Cumulative Index to Nursing and Allied Health Literature) CINAHL Plus via EBSCO portal (1937 to April 10th 2014), and (Database of abstracts of Literature in the field of Psychology) PsycINFO via OVID (1806 to April Week 3 2014).

Search strategy:

Systematic searches were done using a combination of medical subject headings or Thesaurus terms and free text searches with keywords, synonyms, wildcards and truncations. The synonyms for primary health care identified using the Medline filter included 'primary care, 'primary health care', 'general practice,' 'family practice'. The MeSH terms and keywords were organized around the major domains around the subject of this review:

- Consumer* OR patient* OR client* OR user* AND
- View* OR perception* OR expectation* OR preference* OR satisfaction OR report OR assessment OR opinion OR participation OR evaluation* AND
- Primary care OR primary health care OR general practice* OR family medicine* AND
- Instrument OR tool OR data collection OR questionnaire AND
- Development OR validation OR tests

The outcome of the search was refined by limiting the list of citations to empirical studies. The final search results were then imported into the Endnote reference management software and duplicates resulting from pooling all identified citations from the various databases were automatically identified and removed by the software. Titles and abstracts were inspected by the researcher and the full reports were downloaded for studies that met the eligibility criteria for inclusion.

STUDY ELIGIBILITY:

Inclusion criteria

Searches were restricted to papers published in English and such studies were eligible if the main focus of the study was on the development and/or validation of a patient self-report questionnaire for the evaluation of aspects or entire primary health care as defined by the search strategy. No restrictions were put on the year of publication and where multiple publications provided information on the development and/or validation of a particular questionnaire, these publications were all included under that particular questionnaire.

Exclusion criteria

This review was focused on patients' self-report questionnaire for the evaluation of primary health care. Other patients' self-report questionnaires related to the measurement of health status or disease-specific conditions were excluded. Articles were also excluded if: abstract were not available for review and if the development and/or validation were done either for secondary or tertiary health facilities or for inpatients.

DATA EXTRACTION:

A structured checklist used to extract information on the included questionnaires was designed based on recommendation for data abstraction for reviews. The data extracted included article identifier (lead author or patented name of the questionnaire), 'context', 'setting', 'development processes', 'contents', 'utility' and available findings on the measurement properties'(as defined and operationalised in a later part of the method).

The identifier for each questionnaire ensured that data of interest were not duplicated even when information on the questionnaire was obtained from more than one published article.

Methods of assessing and evaluating the questionnaire

The articles identified for each of the included questionnaire were read and evaluated in a systematic manner using the structured checklist. The standards for evaluating the development, contents and measurement properties of these questionnaires was based on published recommendations stated earlier in the concept note.

The assessment was primarily done to identify data that are relevant to the objectives of this review and not to exclude any questionnaire that met the a

priori eligibility criteria.

DATA ANALYSIS:

The data analysis that followed the extraction was conducted to provide answers to all the research questions using the methods described below:

Which settings and contexts were these questionnaires developed?

Descriptive data were reported on the setting tool such as continents and countries where questionnaires were developed. The context describe the nature of the practice as reported in the study (general practice, primary care, PHC,etc.) and the aspect of PHC practice (entire practice, consultation, specific practitioners or services offered at the facility).

What processes were involved in the development of these questionnaires?

The iterative processes involved in the development of the questionnaire were examined and then reclassified into item generation, questionnaire refinement and field validation in accordance with the concept note. Details of the development process including research methods and patients' characteristics (where available) were also presented.

The questionnaires with similar developmental processes were grouped and the frequency and constituents of each group were presented.

What are the contents of these questionnaires?

The items, domains and response formats of the questionnaire as well as information on independent variables (such as practice characteristics, patient self-rated health status and their socio-demographic characteristics) were reported.

What dimensions of quality can the questionnaire measure?

The potential scope of utility of the questionnaire was reported in relation to the structure-process-outcome dimensions of quality that the content of the questionnaire was designed to measure. The dimensions of quality are as summarised below:

- Structural measures (concrete and accessible information exploring if available resources are adequate in quality and quantity to provide the potential for good care);
- Process measure (aspects of the interaction between the facility and the client) and
- Outcome measures (biophysical and psychosocial effects of medical care).
- Questionnaires that were described as multi-dimensional contained items related to the structure, process and outcome of health care quality.

What are the measurement properties of these questionnaires?

The report on indices used to demonstrate the reliability (consistency and reproducibility of the instrument); validity (attribute that an instrument measure what it aims to measure) and acceptability (feasibility and ease of use of the questionnaire) were appraised was based on current recommendations for measurement properties of questionnaires. The definitions, operationalisation and standards for these indices are presented in Table I.

How suitable are these measures for use in the Nigerian setting?

The implication on the need to develop a questionnaire for patients' evaluation of PHC in Nigeria was discussed based on assessments on the appropriateness of existing questionnaire for the Nigerian practice setting. Recommended criteria for evaluating their appropriateness in the Nigerian setting, acceptability and measurement properties of these questionnaires were used to evaluate these questionnaires.[19,21,24]

Issues considered were:

a. If the contents contextually relevant to the Nigerian practice setting. All items in the questionnaire were examined for relevance or appropriateness for use in the Nigerian setting.

b. If the contents of the questionnaire patient-based. Here the key approach for generating items were reviewed to ascertain if patients were involved

Table I. Criteria for evaluating the measurement properties of questionnaires

Measurement criteria	Operationalisation of the concept
Dimensionality	Identification of linear components within the data set and reduction items into possible underlying dimensions using factor analytic techniques.[20, 26]
Acceptability	· Measure response rate – this is the proportion of appropriately completed measure that was retrieved. · Items response rate -percentages of individual item endorsed by the respondents. · Endorsement frequencies – is the percentages distribution of responses across the various item response options. · Distribution characteristics of the various item score in terms of the floor effect (percentage of respondents with lowest possible scores), ceiling effect (percentage of respondents with highest possible scores), means, standard deviations, skewness and ranges of item scores. · Time of completion of the questionnaire by respondents · Patients' rating of the measure.
Reliability	· *Alternate-form reliability* - degree of relatedness of different forms of the same test. · *Internal-consistency reliability* is the overall degree of relatedness calculated by Spearman-Brown formula, Cronbach's alpha or the Kuder-Richardson (K-R 20) formula or split halves . · *Test-retest reliability or reproducibility* is the degree of temporal stability (relatedness) of the questionnaire . Acceptable limits for the various tests for reliability include that for internal consistency (measured by a Cronbach's alpha > 0.7); reproducibility (Test-retest kappa coefficient of >0.7); homogeneity (item-domain correlation >0.3, item-total correlation > 0.2).[17, 19, 27, 28]
Validity	· *Construct validity* -degree to which the conceptualization of what is being measured is what is claimed. It is assessed by the extent to which scores on a particular questionnaire relate to other similar measures. 22 · *Convergent and discriminant* validity - grounds established for a construct based on the convergence of related characteristics (convergent validity) or distinctiveness of characteristics (discriminant validity). · *Criterion validity* is the degree to which the questionnaire is correlated with outcome criteria in the present (its concurrent validity) or the future (its predictive validity) . · *Content validity* is the degree to which the concepts of interest are comprehensively represented by the items in the questionnaire. · *Face validity* is the degree to which the questionnaire "look as if" it is measuring something relevant.

in the process Essentially, questionnaires considered as truly patient-based depended owe majority of their contents from patients and so permit the measurement of attributes of PHC of importance to patients.

c. If use of the questionnaire constitute a high burden to the patients and administrators in a survey. Here the length of the questionnaire and the response pattern were considered. Shorter and closed ended questionnaires are often less burdensome to patients. This review used an arbitrary cut-off of more than 40 items in a questionnaire as being long and also examined the response patterns of ease for patients' use.

d. If the questionnaire been validated for use in Nigeria. Searches were done for published reports on their validation for use in the Nigerian PHC setting.

e. If the questionnaire been validated for us in sub-

Saharan Africa. A similar approach like (d) above was done in the context of sub-Saharan Africa.

f. If the questionnaire measure aspects of the structure-process-outcome dimensions of quality. The items and domains in the questionnaire were examined to determine their scope and relatedness to the various dimensions of quality.

g. If reports on the reliabilities of all scales adequate. The reported reliability of all the scales (domains) and the entire questionnaire was examined in line with the recommendation.

h. If reports on the validity adequate. The articles were thoroughly examined for evidence in support of their content, construct and criterion validations.

Questionnaires with positive attributes on the various criteria were marked '+', those with negative attributes were marked '-,' and 'n' was used where needed information were not available for making a judgment.

RESULTS

A total of 17,211 titles were identified during the systematic search. After the initial rapid screening, 509 abstracts were retrieved for more screening but only 79 full studies were retrieved for detailed assessment. Majority of these (58 articles), were later excluded because they did not describe the development of a questionnaire for patient evaluation of health care or they described the development and/or validation of a questionnaire for patient evaluation of health care but not specifically for PHC. Further 3 of the 58 articles were reserved for use as they contain information related to the same questionnaire for which the main articles had been included. Only 2 additional articles were identified through the search of the reference list (Figure 1).

There were 23 studies that met all the criteria for inclusion. Table II presents the classification of these questionnaires based on development and contents. The majority were published from the year 2000 (78%, n = 18), developed in Europe (61%) with the highest number having their development linked to the United Kingdom (48%). Only 30% of questionnaire had more than 40 core items and the commonest response format was the bipolar Likert-type scale (52%). Commonly reported indices for the measurement properties of the questionnaire were the internal consistency (74%), response rate (44%) and divergent properties (26%) while the least reported were the time of completion of the questionnaire (4%), inter-rater reliability (4%) and the concurrent validity (4%).

The data on the methodological and content specific characteristics from the articles were presented in line with the questions the review was meant to answer as presented in Table III. An assessment of the appropriateness of each questionnaire for use in the Nigerian practice setting was also reported.

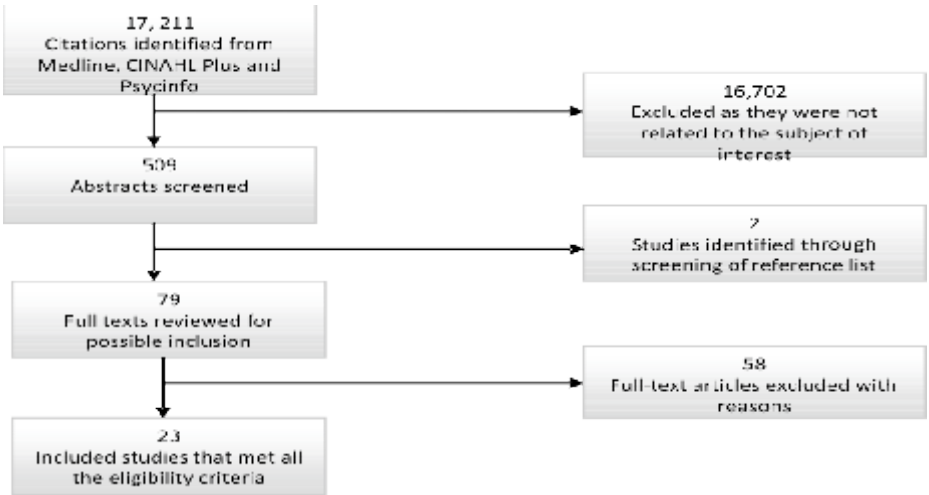

Figure I. Flow chart of article selection process

Table II. Classification of questionnaires

Criteria	Category	Freq (%)	Examples (identified by lead author(s)*
Quality dimension	Structure, process & outcome	13 (57)	(Grol et al., 2000, Bjertnaes et al., 2011, Ramsay et al., 2000, Campbell et al., 2009, Mead et al., 2008, Roland et al., 2013, Campbell et al., 2007, Greco et al., 2003, Safran et al., 1998, Cassady et al., 2000, Lee et al., 2009, Vukovic et al., 2012, Yang et al., 2013, Webster et al. , 2011, Haddad et al., 1998)
	Process only	9 (39)	(Grol et al., 2000, Bjertnaes et al., 2011, Laerum et al., 2004, Baker, 1990, Bova et al., 2012, Harmsen et al., 2005, Meakin and Weinman, 2002, Wolf et al., 1978, Halcomb et al., 2011)
	Outcome only	1 (4)	(Grogan et al., 1995)
Setting developed	Europe	14 (61)	(Grol et al., 2000, Bjertnaes et al., 2011, Ramsay et al., 2000, Campbell et al., 2009, Mead et al., 2008, Roland et al., 2013, Campbell et al., 2007, Laerum et al., 2004, Baker, 1990, Harmsen et al., 2005, Greco et al., 2003, Meakin and Weinman, 2002, Grogan et al., 1995, Vukovic et al., 2012)
	America	4 (17)	(Bova et al., 2012, Wolf et al., 1978, Safran et al., 1998, Cassady et al., 2000)
	Asia	3 (13)	(Halcomb et al., 2011, Lee et al., 2009, Yang et al., 2013)
	Africa	2 (9)	(Webster et al., 2011, Haddad et al., 1998)
Development phases	Item selection, refining & validation	15 (65)	(Grol et al., 2000, Safran et al., 1998, Cassady et al., 2000, Lee et al., 2009, Yang et al., 2013, Webster et al.,2011, Haddad et al., 1998, Baker, 1990, Harmsen et al., 2005, Wolf et al., 1978, Grogan et al., 1995, Halcomb et al., 2011, Mead et al., 2008, Campbell et al., 2007, Laerum et al., 2004)
	Item selection & refining	3 (13)	(Ramsay et al., 2000, Campbell et al., 2009, Roland et al., 2013)
	Item selection and validation	5 (22)	(Bjertnaes et al., 2011, Bova et al., 2012, Greco et al., 2003, Meakin and Weinman, 2002, Vukovic et al., 2012)
**Length	Less than 20	6 (26)	(Mead et al., 2008, Baker, 1990, Bova et al., 2012, Harmsen et al., 2005)
	20 –40	10 (44)	(Grol et al., 2000, Bjertnaes et al., 2011, Campbell et al., 2009, Greco et al., 2003, Meakin and Weinman, 2002, Wolf et al., 1978, Halcomb et al., 2011, Lee et al., 2009, Vukovic et al., 2012, Webster et al., 2011, Haddad et al., 1998)
	More than 40	7 (30)	(Ramsay et al., 2000, Roland et al., 2013, Campbell et al., 2007, Laerum et al., 2004, Grogan et al., 2000, Grogan et al., 1995, Safran et al., 1998, Cassady et al., 2000, Yang et al., 2013)
Response format	Bipolar	12 (52)	(Bjertnaes et al., 2011, Ramsay et al., 2000, Roland et al., 2013, Laerum et al., 2004, Baker, 1990, Meakin and Weinman, 2002, Wolf et al., 1978, Grogan et al., 2000, Grogan et al., 1995, Halcomb et al., 2011, Lee et al., 2009, Yang et al., 2013)
	Unipolar	5 (22)	(Harmsen et al., 2005, Grol et al., 2000, Bova et al., 2012, Greco et al., 2003)
	Variable	6 (26)	(Campbell et al., 2009, Campbell et al., 2007, Harmsen et al., 2005, Webster et al., 2011, Haddad et al., 1998)
Published before year 2000	Yes	5 (22)	(Grogan et al., 1995, Safran et al., 1998, Haddad et al., 1998, Wolf et al., 1978, Baker, 1990)
Adapted internationally	Yes	4 (17)	(Meakin and Weinman, 2002, Yang et al., 2013, Mead et al., 2008, Ramsay et al., 2000)
Reported measurement properties	Internal consistency	17 (74)	(Bjertnaes et al., 2011, Ramsay et al., 2000, Mead et al., 2008, Roland et al., 2013, Laerum et al., 2004, BAKER, 1991, Bova et al., 2012, Meakin and Weinman, 2002, Wolf et al., 1978, Grogan et al., 2000, Halcomb et al., 2011, Safran et al., 1998, Vukovic et al., 2012, Yang et al., 2013, Webster et al., 2011, Lee et al., 2009, Haddad et al., 1998)
	Response rate	10 (44)	(Bjertnaes et al., 2011, Ramsay et al., 2000, Campbell et al., 2007, BAKER, 1991, Bova et al., 2012, Greco et al., 2003, Meakin and Weinman, 2002, Grogan et al., 2000, Safran et al., 1998, Yang et al., 2013)
	Divergent properties	6 (26)	(Ramsay et al., 2000, Baker, 1991, Harmsen et al., 2005, Grogan et al., 2000, Halcomb et al., 2011, Lee et al., 2009)
	Floor and ceiling effects	3 (13)	(Bjertnaes et al., 2011, Campbell et al., 2007, Safran et al., 1998)
	Inter-item correlation	3 (13)	(Campbell et al., 2007, Meakin and Weinman, 2002, Haddad et al., 1998)
	Item-total correlation	3 (13)	(Campbell et al., 2007, Safran et al., 1998, Haddad et al., 1998)
	Inter-scale correlation	3 (13)	(Wolf et al., 1978, Safran et al., 1998, Lee et al., 2009)
	Correlation with general satisfaction	3 (13)	(Ramsay et al., 2000, Webster et al., 2011, Haddad et al., 1998)
	Missing items analysis	2 (9)	(Bjertnaes et al., 2011, Yang et al., 2013)
	Completion time	1 (4)	(Safran et al., 1998)
	Inter-rater reliability	1 (4)	(Harmsen et al., 2005)
	Concurrent validity	1 (4)	(Meakin and Weinman, 2002)

* Full details seen in the reference list ** Considered only core items in the questionnaire

Table III. Methodological characteristics and contents of published measures

Identifier	Context	Development processes	Patients characteristics	Contents – items, scales, response format*	Potential Utility	Measure's – acceptability, reliability, validity	Assess appropriateness for local application							
							a	b	c	d	e	f	g	h
EUROPEP Instrument [29-31]	General practice, 8 countries in Europe	Literature review, qualitative and quantitative pilot, formal translation and validation	Sex, age, frequency of visits to GP in last 1 year, perceived health status	23 items, 2 scales – general practitioner & general practice evaluation scales, 5-point response (poor to excellent)	Structure, process	Estimates not reported	-	+	+	-	-	-	n	n
The Norwegian EUROPEP questionnaire [32]	General practice, Norway	Adapted EUROPEP, psychometric testing	Age, gender, perceived health status, consultation last 1 year	23 items with 2 validation items, 5-point scale, middle not applicable option	Structure, process	Response rate 61.9%, item missing data 0.2% to 31.2%; ceiling effect 10.2 – 80.8%; Alpha > 0.7 (0.7 – 0.95)	-	+	+	-	-	-	+	+
The General Practice Assessment Survey (GPAS) [33]	General practice, UK	Expert review of the patient care assessment survey (PCAS). Field testing	Gender, date of birth, marital status, ethnicity, existence of chronic illness, perceived health status, residence, availability of transport	46 items, 5 scales, response on 5-point Likert scale (strongly agree to disagree strongly with middle, not applicable option)	Structure, process, outcome	Response rate 48 – 68%, Alpha 0.74 – 0.95. positive correlation with general satisfaction score,differentiates population subgroups	-	-	-	-	-	+	+	+
The GP Patient Survey Questionnaire [34]	General practice, UK, Europe	Literature review, joint review, cognitive test, pilot	Gender, age, ethnicity, job/earning, time to work, ease of seeing doctor during work, perceived h/status, c/condition, physical challenge	23 items, 3 scales, different (2 -6) response scale	Structure, process, outcome	Response rate 39.4%, missing data 0.8 – 15.3%,	-	-	+	-	-	+	n	n
The General Practice Assessment Questionnaire (GPAQ) [35]	General practice, UK	Review of GPAS. Expert review Field testing	Age, sex, ethnicity, employment, accommodation, GP consultation last 1 year.	19 items, 5 scales, response 0 - 100	Structure, process, outcome	Alpha range 0.86 – 0.97 for both postal and consultation versions	-	-	+	-	-	+	+	n

Table III. Methodological characteristics and contents of published measures *cont'd*

Identifier	Context	Development processes	Patients characteristics	Contents – items, scales, response format*	Potential Utility	Measure's – acceptability, reliability, validity	Assess appropriateness for local application							
							a	b	c	d	e	f	g	h
Revised General Practice Assessment Questionnaire (GPAQ-R)[36]	General practice, UK & Europe	Review of GPAQ format and questions, cognitive testing Field testing	Age, sex, existence of long-standing illness, ethnicity, employment	54 items, 3 scales, response on 5 points Likert scale	Structure, process, outcome	Alpha range 0.62 – 0.91	-	-	-	-	-	+	-	n
Out-of-hour Patient Questionnaire [37]	Primary care, UK & Europe	Literature review. Experts review. Audit, Focus group discussion, Pilot of draft questionnaire	Gender, age, ethnicity, existence of chronic illness, reported consultation length,	56 items in 7 sections, mixed response formats demographics data	Structure, process, outcome	Response rate 45.6% (12.0 – 95.2%), floor (0.0 – 0.5%), ceiling (15.6 – 23.3%), inter-item correlation (0.82 – 0.96), item-total (0.56 – 0.90)	-	-	-	-	-	+	n	+
The patient perspective survey questionnaire (PPS)[38]	General practice, Norway	Literature review. Discussion with GPs. The pilot study, Interview, Expert input. Field testing	Background health conditions	54 items, 3 dimensions of 3 factors each. 5 point Likert scale response	Process	Cronbach's Alpha 0.62 – 0.91	-	-	-	-	-	-	-	n
Satisfaction with consultations in general practice questionnaire [39]	Consultation in general practice, UK & Europe	Literature review. Discussion with GPs Field testing	Not stated	18 items, 4 scales, 5 point Likert-type scale response	Process, outcome	Response rate 75%, Alpha 0.67 – 0.87 (domains), 0.91 (questionnaire). Discriminates race, ethnicity and provider type	+	-	+	-	-	-	-	+
Health care relationship trust scale [40]	Primary care, USA	Survey	Age, gender, race, ethnicity, m/status, education, type of PC provider, C/condition+, no of visits	13 item, unidimensional, unipolar (0 – 4) response	Process	Response rate 43%, Alpha 0.76 – 0.92 (item), total 0.97	+	-	+	-	-	-	+	n
Mutual understanding scale [41]	General Practice Netherlands	Expert panel, survey	Age, ethnicity, language proficiency, income, education	Mixed response formats	Process	Inter-rater reliability 47%, discriminates population groups	+	-	+	-	-	-	+	+

Table III. Methodological characteristics and contents of published measures *cont*'d

Identifier	Context	Development processes	Patients characteristics	Contents – items, scales, response format*	Potential Utility	Measure's – acceptability, reliability, validity	Assess appropriateness for local application a	b	c	d	e	f	g	h
The Improving Practice Questionnaire [42]	Primary care, UK	Adapted from PAIS Field testing	Age, gender, year attending practice, visit usual GP?	27 items in 2 scales, 5-point unipolar response	Structure Process Outcome	Mean response rate 90.3%	-	-	+	-	-	+	n	n
The Medical Interview Satisfaction Scale (MISS-21) [43]	General practice, UK	Adapted from MISS-29 Field testing → MISS-21		21 items in 4 scales, 7-point Likert response	Process	Response rate 92.1%Cronbach's Alpha 0.67 – 0.92, inter-item correlation 0.46 – 0.65. correlation with MISS-29 (0.21 – 0.63)	-	-	+	-	-	-	-	+
The Medical Interview Satisfaction Scale [44]	Consultation in Primary care, USA	3 field trials. -pretest of format and content -instrument development -field trial	Age, race, sex, education, occupation	26 items in 3 scales, response on 5-point Likert scale	Process	Alpha 0.86 – 0.87 (scale), 0.93 (measure). Inter-scale correlation (0.62 – 0.76)	-	-	+	-	-	-	+	+
SF-46 [45, 46]	General practice, UK	Review of previous use. Survey	Gender, physical condition, age, dependents, visits (dr/pt) last 1 year, access to doctor after work hour, possession of home telephone	46 items in 5 scales. Response on 5-point Likert scale	Outcome	Response rate 48 – 68%, Cronbach's Alpha for scales 0.74 – 0.95, scale differentiated population groups	-	n	-	-	-	-	+	+
General Practice Nurse Satisfaction Scale [47]	General practice, Australia	Literature review. Expert review Validation study	Age, gender, occupation, type of insurance, the length of contact with the clinic, no of visits to a practice nurse, reason for visit, an appointment with whom.	21 items, 2 factors, Response - 5 point Likert scale	Process	Cronbach's Alpha 0.97, differentiated population groups	-	-	+	-	-	-	+	+

Table III. Methodological characteristics and contents of published measures *concluded*

Identifier	Context	Development processes	Patients characteristics	Contents – items, scales, response format*	Potential Utility	Measure's – acceptability, reliability, validity	Assess appropriateness for local application							
							a	b	c	d	e	f	g	h
The Primary Care Assessment Survey[48]	Primary care, USA	Expert review Community -based survey	Socio-demographic and health status information	51 items in 7 domains with 11 scales. Responses were 0 -100	Structure, process, outcome	7 minutes' completion time, response rate 68.5%, satisfied all Likert scale assumptions	-	-	-	-	-	+	+	+
Primary Care Assessment Tool -Child edition (PCAT-CE)[49]	USA	Literature review Community -based telephone survey		26 items in 6 scale s with Likert-type 1–4 and don't know (0) response scoring	Structure, process, outcome	25 minutes' completion	-	-	+	-	-	+	n	n
The Korean primary care assessment tool[50]	South Korea	Literature review. Sorting of items and scales. Content validity. pilot	Age, sex, education, income, duration of the first visit, no of disease	21 items in 9 scales, 5 point Likert-type response	Structure, process, outcome		-	-	+	-	-	+	+	n
Patients satisfaction in Serbia[51]	General medical dep artment, Serbia	Survey	Age, education, marital status, gender, affiliation to GP, frequency of visit last 12 months	20 items (13 core items) in 2 scales, variable response formats	Structure Process Outcome	Scales Alpha 0.947 and 0.852 respectively	-	-	+	-	-	+	+	n
Chinese primary care assessment tool – PCAT -C[52]	Hospital and health cent er s	Literature review, Forward & backward translations. Delphi procedure, Pilot test, bilingual experts review, validation	Age, sex, employment, education, monthly H/hold income, regular source of care, utilization pattern, visit frequency, existence of chronic illness, OOP payment, perceived health status	63 items, 8 multi - item & 1 single item scale. Responses - 4 point Likert -type + neutral response	Structure Process Outcome	Response rate 69.5%, missing data <0.5%, Alpha >0.6	-	-	-	-	-	+	-	n
Patient healthcare experience[53]	Hospital and health centre , Ethiopia	Literature review. Qualitative study, Translation Quantitative survey	The level of schooling, perceived health status, gender, age. Governance type, number of beds, teaching status	23 items in 4 scales, multiple response pattern	Structure Process Outcome	Alpha 0.59 – 0.92	+	+	+	-	+	+	-	+
Lay people perception of PHC[54]	Primary health Centre, Guinea	Literature review. Qualitative study, Field validation	Sex, employment of head of family, place of residence, location and type of facility	20 items, 3 scales, multiple response pattern	Structure Process Outcome	Cronbach's Alpha 0.71 – 0.84 for the scales and 0.88 for entire questionnaire	+	+	+	-	+	+	+	+

*Reported the predominant response format where multiple formats were used, a- relevance to Nigerian cultural and practice setting, b - contents are truly patient-based, c – require less patients and administrative burden, d – validated for use in Nigeria, e – validated for use in sub-Saharan Africa, f – items can measure the elements in the structure, process and outcome dimensions of quality, g - has acceptable findings on reliability, h – has acceptable findings on validition.

DISCUSSION

The review had 23 questionnaires developed for patients' evaluation of aspects or entire PHC globally. Two of these questionnaires were developed in Ethiopia and Guinea. The publication trend shows the increasing interest in the development of questionnaire for patients' evaluation of PHC. This trend mirrors the influence of consumerism in health care which emphasize consumer sovereignty and the need to shape health and social systems around the needs of the consumers of these services.[15, 55, 56] Adhering to this paradigm of patients' centricity requires focused analysis of patients' views in the planning and organisation of health services.[57] Some of the effects of this trend is the increase in competition, quality improvement and cost containment in health care.[15,16,55]

Questionnaires for patient evaluation were mostly designed for PHC settings in developed countries especially the United Kingdom. This observation from the review is not surprising as the legitimacy and interest in patient's views on health care quality mirror political developments,[58] and the level of modernisation of the society.[59] In many developed countries, periodic patient evaluation of health care are established rules and penalties are sometimes prescribed for those who do not undertake such.60It is certain that the desire to actualize such lofty ideals influenced development of questionnaires to suit specific contexts and also the periodic revalidation of existing ones to make them relevant to the current patients and practice requirements.

Many of the questionnaires used extensive processes that involved patients in at least a phase of their development but a contrast can be noticed in the approach used in generating items I different socio-cultural settings. While most questionnaires from developed countries[34, 35, 41, 48] depended more on theoretical assumptions for item generation, the converse was observed with those developed in the African setting where patients' needs and expectations played more prominent roles in the generation of items.[53, 54] It is noteworthy that items generated through theory-based approach are consistent with professionally defined construct and often supported by conceptual models.[20] However, the inductive item generation as a paradigm is influenced by current ideology of driving quality improvements in health care more through the *actual needs* of patients rather than their *presumed needs* or technically defined criteria.[61] It looks alright to expect truly patient-based questionnaires to field items that are relevant to the needs of the patients and also convincingly better suited for patient-focused quality improvement in PHC. Understandable, the latter approach would require more extensive development process to ensure that the final questionnaire has good measurement properties.[20]

The lengths of questionnaires in this review are varied with 70% of them fielding 40 core items or less. Questionnaires are expected to contain adequate sample of items that are relevant and representative of the constructs to be measured.[21, 62] Questionnaires' length can also be a trade-off between ease of administration and questionnaires' validity because longer questionnaires have higher validity and internal consistency but patients are more willing and able to complete shorter questionnaires without necessarily getting fatigued.[28,63] Furthermore, survey administrators can easily administer and manage surveys with shorter length of questionnaire.[19,27] These notwithstanding, decisions on questionnaire's length should consider the context and characteristics of potential respondents to assure the validity of questionnaire surveys.[19,28,63]

Over half of the developed questionnaires are potentially suitable for evaluating attributes related to the structure-process and outcomes quality dimensions in health care. The complexities in the interconnectedness between structure/process on the one hand and outcome, makes it an imperative for the conduct of a full system assessment.[64] Each of these dimensions of quality should necessarily be considered as being complementary rather than alternatives so that deficiencies highlighted in one dimension is either explained from the findings on the others or will inform further evaluation of the affected dimension.[6,65]

While most questionnaires for patient self-report on health care are designed to be *evaluative*, they also need to have *discriminative* properties as they are expected to generate enough variance among

entities being assessed. The ability to differentiate different levels of providers' performance with patient evaluation of health care is better with the use of the Likert response scale used. [6, 66] This probably explains why the Likert scale was the commonest response style in these questionnaires.

The floor and ceiling effects are important measurement properties which were reported in 13% of studies. There are tendencies for extreme response bias in which respondents preferentially endorse the endpoints of a questionnaire. The finding of low floor and ceiling effects is not only indicative of the acceptability and discriminative properties of the questionnaires but is also additional evidence to support the content validity and reliability of the questionnaire.[22]

The commonest measurement property reported was the internal consistency as 74% of studies reported the value of the Cronbach's alpha. The Internal consistency which estimates the overall degree of relatedness of all items in a scale and so is related to the number of items, standard deviation of observed score and the sample size. [67] The Cronbach's alpha is considered an adequate measure for internal consistency[22] but some of the alpha values reported for domains and entire questionnaire were outside the recommended ranges of 0.7 to 0.9. it is important to note that the value of the Cronbach's alpha is not fixed but varies with the context and population studied. [21] This means that the internal consistency of the questionnaire should be determined for every defined population and context. Aside internal consistency, the reproducibility of the questionnaire which demonstrates its stability with repeated measurements is another form of reliability assessment. The observation from this review that only one study determined the inter-rater reliability index reflects the reluctance of researchers to undertake such assessment. One reason for this may be the threat of bias as patient experience or satisfaction changes with time and event.

Implications of the findings on the Nigerian practice setting.

There were two important observations related to the Nigerian practice setting. First was the absence of any questionnaire developed and/or validated for the Nigerian PHC setting. Secondly, none of the identified questionnaire as well demonstrated satisfactory results for all stated criteria used to evaluate their appropriateness for the Nigerian PHC context.

The questions of whether to jettison existing questionnaires and embark on the development of a new one for the Nigerian setting do not have a straight forward answer. Clearly, the benefits of verifying the applicability and appropriateness of available questionnaires before commencing work on the development of a new questionnaire are obvious as this will save time and resources.[19] The questionnaires that were adapted from existing ones were capture in this data. [33, 35, 43, 52] The minimum requirements for a success in this regard, could be the assurance of the content validity, construct validity and the reliability of the new questionnaire. However, an additional requirement in the Nigerian context would be the forward and backward tanslation of this questionnaire and the validation of the translated questionnaire. This is so because 38% of women and 21% of men, especially those living in the northern parts of Nigeria and in rural areas have no formal education.[68]

Other setbacks which should be considered before the decision for transfer or adaptation of questionnaires across socio-cultural and practice settings include the possibility of faulty translations, irrelevance of some contents or difficulty resolving semantic issues across cultures.[17]

The problem with transferability is further accentuated by the varied forms of PHCs across continents. These differences in PHCs are easily deciphered in the ideology, structure, function, administration and resource configuration for PHC across countries.61 A quick fix of the problems with transferability is unlikely because the development and contents of questionnaires for patients' evaluation of PHC is usually done in line with countries' cultural and practice uniqueness. Similarly, a critical requirement for an appropriate questionnaire for driving patient-focused quality improvement in PHC is fielding a battery of items that reflect patients' representation of quality in the context questionnaire is meant to be used. Despite the complexities associated with adaptation, if future questionnaire developers were to take the

option of validating existing questionnaire for studies in Nigeria; this review provides data on those questionnaire that are most appropriate for the Nigerian practice setting and how they can go about it.

Limitations of the review

There are a number of limitations of the methods and findings of this review. Firstly only explicitly reported data were extracted from the included articles. While this was done to prevent misrepresentation, it is not an exhausted approach as some procedures would have been done without actual statement credited to them. Also repositories of institutions like the World Health Organisation which may contain English or non-English instrument for patient evaluation were not included in the search for published questionnaires for patients' evaluation of PHC. Finally, the assessment of the individual studies did not extend to a critical appraisal of the strength of their methodologies or their performances on measurement indices documented in this review.

CONCLUSION

This paper had considered the development, content and measurement properties of published questionnaires for patients' evaluation of PHC. Findings show that only 2 out of the 23 questionnaires for patient evaluation of PHC were developed in Africa and there were no published records of any developed or validated in Nigeria. Most questionnaires were developed to suit specific practice context and transferability of such questionnaire across practice setting remains an unresolved issue. Whilst there are options for the adaptation of an existing or development of an original questionnaire, the limited applications of included questionnaires in the Nigerian PHC setting could be a justification for the development of a contextually sound and conceptually relevant measure for local use.

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