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Satisfaction of Nigerian - Based Patients with Health Services: A Systematic Review

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Abstract— Background*: We conducted a systematic review of patient satisfaction with health services in Nigeria. The aims were to investigate how patient satisfaction with health services was explained and evaluated, whether there is the existence of a reference point measure of satisfaction, to identify topics considered by service users as crucial in the conveyance of top quality care and to expose areas of dissatisfaction.* ***Methods****: We searched MEDLINE, EMBASE, CINAHL, PsycINFO, AJOL, CDSR, DARE and HTA databases. Searches were supplemented by hand searching. Only studies published from 2007 to July 2018 were included. Following the initial title, abstract- and full-text screening, data from eligible studies were extracted and reviewed by two independent reviewers. Studies were critically appraised using the COSMIN risk of bias checklist. Common themes were identified and analyzed using content analysis.* ***Results****: A total of 4509 references were identified. Forty-five studies were included for data extraction after the screening process. There was no existence of a reference point measure of satisfaction. Seven themes were identified as relevant to patients and main areas of dissatisfaction were also identified.* ***Conclusions****: Evaluation of patient satisfaction in Nigerian hospitals utilized a multidimensional construct. Identified themes should be incorporated into the development of satisfaction measures for use in the assessment of service quality in healthcare facilities in the Nigerian context.*

Keywords— *Patient satisfaction, health services, Nigeria, Systematic review.*

Systematic review registration: PROSPERO CRD42018108140

I. INTRODUCTION

The challenge of the health sector in most developing countries is to make healthcare services readily available, affordable, and accessible, appropriate and equitably distributed. In Nigeria, it is the responsibility of the government as well as the privately or publicly owned health facilities to make health services available to the general populace. [1] The major concern of these health facilities remains whether the health services are delivered in a way that ensures optimal clients' and other stakeholders' satisfaction with services provided.[2]

Over the years, the quality of health care services has been improved significantly through several evidence-based innovations such as the use of mobile health service on wheels, e-health, electronic mortality reporting, to mention but a few. [3,4] However, the problem of proper distribution and dissemination of these innovations still remains a challenge for the industry. [5]

Evidence suggests a relationship between the quality of healthcare services and satisfaction of patients with the services. [6,7] Several studies have been carried out on the quality of health service delivery over the years. [2,8] Both quantitative and qualitative methods are useful in the assessment of patients' satisfaction with healthcare. However, quantitative methods are more popular and are more often used. The relatively small sample size and the enormous time spent in data analysis of qualitative research makes it unpopular especially in evidence-based medicine where quantitative and objective data, that are more generalizable, less time consuming remain the focal point. [9]

Quantitative studies especially those involving the use of questionnaires have been used extensively to record the perceptions and satisfaction of patients with health services in Nigerian hospitals and clinics. [10,11,20–29,12,30–39,13,40–49,14,50–54,15–19] A systematic review can be used to establish excellent procedures in evaluating patient satisfaction and to devise new measurement tools based on the established patient first concerns. The research question was:

How was the patients' satisfaction with health services evaluated in Nigerian hospitals and clinics?

The review, therefore, had the following objectives:

1. To find out what is known about the methods for assessing patients' satisfaction with health services in Nigerian hospitals.
2. To find out whether a reference point measure of satisfaction exist (i.e. a gold standard method).
3. To find out the themes/topics considered in assessing patients' satisfaction with health services in Nigeria.

II. METHODS

All sections of our review are in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses

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(PRISMA) statement. [55] A protocol was drafted in the planning phase of this review and is published elsewhere. [56]

Information sources and search strategy

Our search strategy follows a highly sensitive search approach. We used a combination of relevant text words and Medical Subject Headings (MeSH) or other hierarchical medical vocabulary systems to incorporate basic elements of our research question, this included population and context (e.g., hospitals, clinics, health service, and patients), geographic region (i.e., Nigeria), outcomes (e.g., patient satisfaction and perception), and study design (e.g., study, trial, and surveys). We used search filters to exclude animal studies and published articles before 2007. A search for MEDLINE was first developed and piloted by the author team. This MEDLINE search was adapted to match the necessities of the other included databases (e.g. no controlled vocabulary system for some databases e.g. AJOL). All search results were exported as .ris files or as a Word-document and were stored locally. They were then merged in one Endnote file

We searched the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE; via OvidSP), ExcerptaMedica database (EMBASE; via OvidSP), Cumulative Index to Nursing and Allied Health Literature (CINAHL; via EBSCOhost), PsycINFO (PsycINFO; via OvidSP), African Journals OnLine (AJOL; via AJOL) Cochrane Database of Systematic Reviews (CDSR; via Wiley), the Cochrane Database of Abstracts of Reviews of Effects (DARE; via Wiley), and the Cochrane Health Technology Assessment database (HTA; via Wiley).
All queries, search dates and the individual number of hits for the included databases are provided in the appendix section.

Inclusion and exclusion criteria

Included studies shared the following characteristics:

1. They should investigate the satisfaction of patients with health services in Nigerian hospitals or clinics;
2. They should be carried out on adult patients, eighteen years and above;
3. They should be performed with quantitative instruments (questionnaire-based studies);
4. Eligible research papers and reviews should be original;
5. The included studies ought to be published in the English language;
6. The studies should assess patient satisfaction as a primary outcome (see: Outcome types); and
7. They should be reported between 2007 and 2018.

We excluded qualitative studies, studies reported in other languages than English as well as studies reported/published before 2007.

Study selection

Two reviewers separately applied the eligibility criteria to the formerly identified records. The full-text screening underwent the same process afterwards.

Outcome types

Patient satisfaction with health services was the main outcome measured. However, any approach or method used to evaluate patient satisfaction was also included.

Data extraction

A document was prepared to collect relevant information from the selected articles. Two reviewers separately retrieved the essential information from the articles, and any disagreement was cleared after discussion. The following items were extracted: year, authors, sample size, study design, healthcare setting (hospital or clinic), satisfaction tool employed, dimensions of the instruments, format, psychometric properties analyzed.

Risk of bias

The Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) Risk of bias checklist was used to check the validity and reliability of the included studies. The checklist was solely designed for evaluating the methodological quality of single studies included in systematic reviews of Patient-Reported Outcome Measures (PROMs).

The rating of the single studies was very good, adequate, doubtful or of inadequate quality.[57] The worth of a study (i.e. its quality) was concluded by taking the minimum rating of any of the standard questions (i.e. "the worst score counts" principle).[58] Mokkink et al [59] published the analysis and full explanation of the COSMIN checklist and its application methods. For this review, the COSMIN checklist was applied to every included study by the principal reviewer and all doubts were discussed.

Data Synthesis

We carried out a comprehensive and detailed narrative synthesis to address our primary objectives. We gathered information only from the studies which documented results on one or more measurement properties of the COSMIN risk of bias checklist. Essential features of these studies were summarized in a tabular form and were divided under seven themes/topics that emerged from the included studies.

III. Search Results

The search in electronic databases yielded 5385 hits (AJOL: 18, CINAHL: 352, EMBASE: 1883, MEDLINE: 1932, PsycINFO: 242, CDSR: 472, DARE: 421, HTA: 65). A total of 4509 title and abstracts were finally considered for the process of screening after de-duplication. During title, abstract and full-text screening, we excluded 4478 records. The remaining 31 studies plus 14 obtained from hand searching of the reference lists (i.e. 45 studies) were included for data extraction. (See Figure 1).

Characteristics of the included studies

In this review, several aspects of health services ranging from antenatal, eye care, dental care, antiretroviral, nursing, pharmaceutical, medical, laboratory, physiotherapy, radiological, psychiatric services were considered. The number of survey participants included ranged from 51 (from

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outpatient physiotherapy clinic) [34] to 2700 participants (from 17 HIV treatment centers).[12] Seven studies (15.56%) were done in antenatal clinics, among pregnant women; six (13.33%) were carried out among HIV-infected persons. Three articles (6.67%) assessed patients in accident and emergency units. Four studies (8.89%) were done in outpatient physiotherapy clinics. Two articles (4.44%) evaluated the satisfaction of patients with dental services.

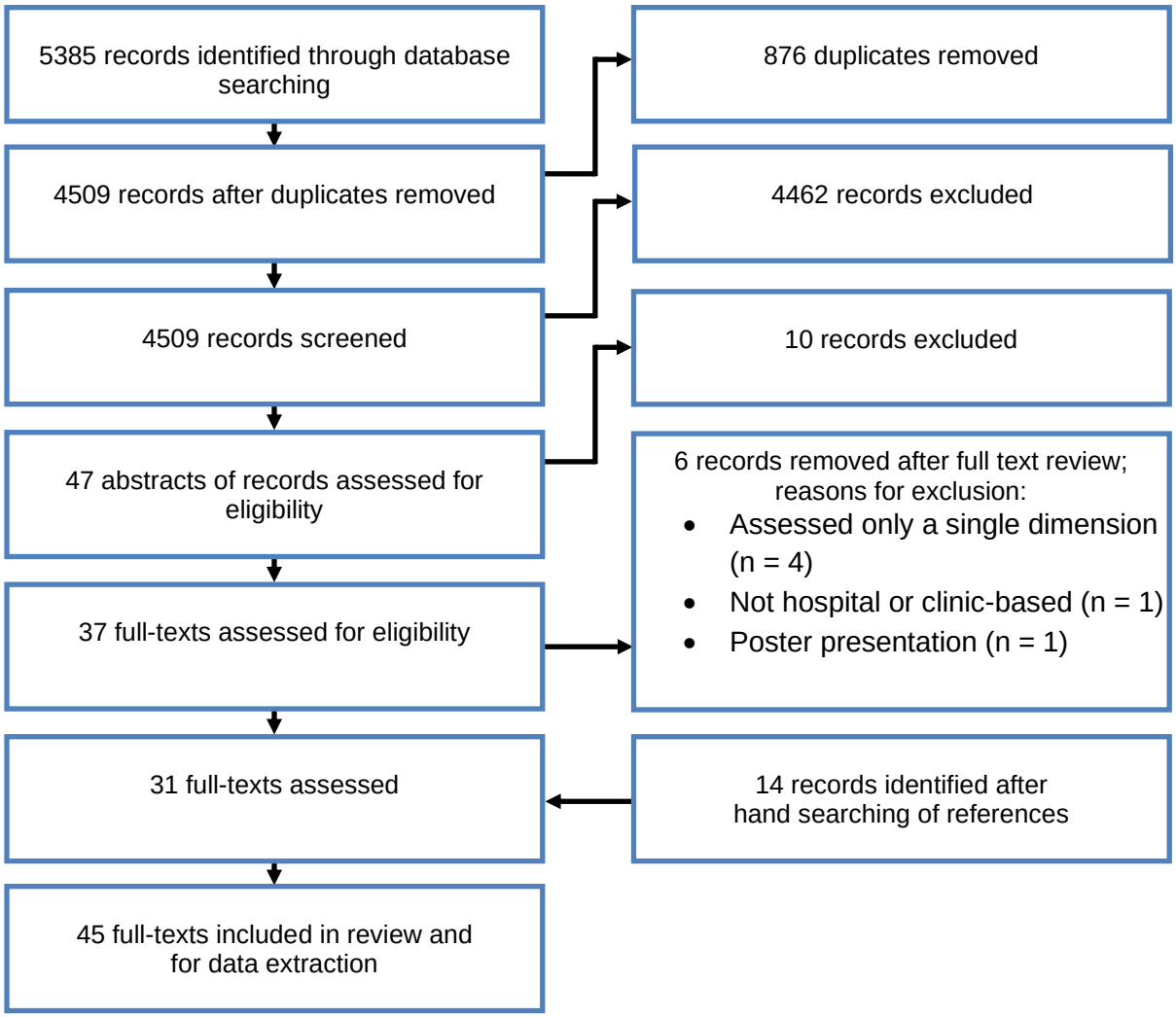

Fig. 1. Information flow through the different phases of the systematic review

Ten articles utilized semi-structured questionnaires and many of these tools were administered in an interviewer setting. The questionnaires used in thirty-three studies adopted the Likert scale for scaling survey responses. The designs of all but one of the included studies were cross-sectional. Response rates were absent in twelve of the included studies. (Table 1)

Patient satisfaction assessment tools/ measures

This review observed that different instruments were used to assess patients' satisfaction with health services, and only few were utilized by more than one study - even in the studies with focus on the same population. For example, two out of six studies carried out in HIV/AIDS clinics made use of the same satisfaction measurement instrument. The seven studies conducted among pregnant women all utilized different satisfaction questionnaires. However, the two included studies carried out in a dental clinic made use of the same satisfaction tool: the modified Dental Satisfaction Questionnaire (DSQ) (see Table 1). In this study, we consider a ''a reference point (i.e. gold standard)'' measure of patient satisfaction as consideration of appropriate evaluation and reporting with regard to reliability (are the findings dependable and can be replicated); validity (has an evaluation been carried out on what patients regard as relevant determinants of quality and are they correctly assessed); acceptability; and practicability (i.e. feasibility). [60]

The dimension of the satisfaction construct in most (41) of the included studies is multidimensional, ranging from two to eight dimensions. However, this was not clearly stated in four studies.

TABLE 1. Summary of the studies that met the criteria for the review

S/N	Study (year)	Sample size	Study location; Health care setting	Pre-test; Survey design	Name of instrument to assess satisfaction	Construct dimensions (no. of dimensions)	Format for survey items; Response rate	Measurement properties	Psychometric values	Cosmin rating
1	Bellow (2018)	500	2 ANCs	Interviewer-administered. Cross-sectional	Quality of Prenatal Care Questionnaire (QPCQ).	Multidimensional (6)	Likert	Not stated	Not stated	Not possible
2	Olaleye *et al* (2017)	65	Hospital; Outpatient physiotherapy care (OPC)	Cross-cultural adaptation. Cross-sectional	European Physiotherapy Treatment Outpatient Satisfaction Survey Questionnaire (EPTOPS)	Multidimensional (5)	Likert; 92.3%	Not stated	Not stated	Not possible
3	Michael *et al* (2017)	202	NHIS clinic	Pre-tested, self-administered. Cross-sectional	General Practice Assessment Questionnaire (GPAQ) originally in English, translated in Hausa.	Multidimensional	Likert; 100%	1. Cross-cultural validation	Chi-square analysis	1. Inadequate
4	Ogunlade *et al* (2017)	428	A&E clinic	Adapted, self-administered. Descriptive design	Modified Consumer Quality Index for Accident and Emergency	Multidimensional	Likert; 100%	1. Hypothesis testing	Regression, F=3246, df=3,423, R^2= 0.016	1. Adequate
5	Osiya *et al* (2017)	1290	2 hospitals	Self-administered. Cross-sectional	Patient Satisfaction Questionnaire (PSQ-18)	Multidimensional (7)	Likert; 100%	1. Content validity. 2. Cross-cultural validation	2. Mann Whitney Tests and Kruskal Wallis Test	1. Sufficient 2. Adequate
6	Boehmer *et al* (2016)	340	HIV clinic	Pretested in 15 women; Cross-culturally adapted, self-completed. Cluster-randomized trial	Patient satisfaction questionnaire (PSQ)	Multidimensional (3)	Likert; 92.10%	1. Content Validity 2. Structural validity 3. Internal Consistency 4. Cross cultural validity	α=0.94, IQR= 4.61 (intervention arm), 3.84 (control arm)	1. Sufficient 2. Adequate 3. Very good 4. Inadequate
7	Afe *et al* (2016)	120	Psychiatric hospital	Interviewer-administered. Cross-sectionaal	Charleston Psychiatric Out-patient Scale (CPOSS)	Multidimensional	Likert	1. Internal consistency 2. Structural validity 3. Hypothesis testing	α = 0.91, convergent validity 0.30–0.68, correlation r=0.29	1. Doubtful 2. Inadequate 3. Very good
8	Ekpe *et al* (2016)	130	Hospital	Pre-tested; Self-administered. Cross-sectional	Structured questionnaire	Multidimensional	Likert; 83.08%	Not stated	Not stated	Not possible
9	Sowunmi *et al* (2015)	253	Hospital	Semi-structured questionnaire. Cross-sectional	Not stated	Multidimensional	Likert; 97.2%	Not stated	Not stated	Not possible
10	Ochonma *et al*(2015)	300	2 radiology centers	Validated questionnaire through pilot		Multidimensional (3)	Likert; 100%	1. Measurement error	t (242.13) = −6.960, p < .001,	1. Adequate

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				study; Interviewer administered. Cross-sectional						
11	Shagaya (2015)	68	NHIS clinic	Interviewer administered, exit interview. Cross-sectional	Standard Quality Assurance Team (SQUAT) and Quality of Health care services through patient eye's (QUOTE)	Multidimensional	Not stated	Not stated	Not stated	Not possible
12	Okwuonu *et al* (2015)	406	Diagnostic center	Pre-tested; Semi-structured, self-administered. Cross-sectional	Not stated	Not stated	Not stated	Not stated	Not stated	Not possible
13	Agu *et al* (2014)	2700	Hospital; 17 HIV treatment centers	Pre-tested; Exit interview, semi-structured. Cross-sectional	Study-specific	Multidimensional (7)	Likert; 59.9%	1. Content validity 2. Structural validity 3. Internal consistency 4. Reliability	α > 0.7, KMO = 0.933, Bartlet's test for sphericity = 0.905, ICC = 0.905 (95% CI 0.8983-0.9115)	1. Sufficient 2. Adequate 3. Inadequate 4. Very good
14	Nnebue *et al* (2014)	280	PHC clinic	Pre-tested questionnaire; Interviewer-administered (exit interview). Cross-sectional	Not stated	Not stated	Not stated	Not stated	Not stated	Not possible
15	Ezegwui *et al* (2014)	307	Eye clinic	Pre-tested; Interviewer-administered. Cross-sectional	Not stated	Multidimensional (5)	Likert; 100%	Not stated	Not stated	Not possible
16	Fatiregun *et al* (2014)	800	Primary health center	Adapted, semi-structured, exit interview. Cross-sectional	Adapted from the protocol of the Addis Ababa University KABP Study on Immunisation Exit Interview Questionnaire	Multidimensional (5)	Not stated	1. Cross-cultural validation	Regression analysis	1. Adequate
17	Fadare *et al* (2014)	100	Mental health clinic	Validated; Interviewer-administered. Cross-sectional	Treatment Satisfaction Questionnaire for Medication (TSQM 1.4).	Multidimensional (4)	0-100	Not stated	Not stated	Not possible
18	Okoye *et al* (2014)	1637	6 HIV/AIDS clinics	Self-administered. Cross-sectional	Patient Satisfaction with Pharmaceutical Service' (PSPS)	Multidimensional (5)	Likert	1. Structural validity 2. Internal consistency 3. Reliability 4. Hypotheses testing	α = 0.85 correlation coefficient, r < 0.5 (divergent validity), r > 0.5 (convergent validity)	1. Very good 2. Very good 3. Doubtful 4. Very good
19	Adekanya *et al* (2013)	480	Hospital; Federal medical center (FMC).	Pretested; Exit interview. Cross-sectional	Not stated, adapted from literature	Multidimensional (3)	Likert; 88.9%	Not stated	Not stated	Not possible

20	Adeniyi *et al* (2013)	348	Dental clinic	Self-administered. Cross-sectional	Modified Dental Satisfaction Questionnaire (DSQ)	Multidimensional (7)	Likert; 90.90%	1. Cross-cultural validation	Regression analysis	1. Adequate
21	Sufiyan *et al* (2013)	234	ANCs	Pretested; Semi structured, exit interview. Cross-sectional	Self- developed	Multidimensional	Dichotomous	Not stated	Not stated	Not possible
22	Babatunde *et al* (2013)	250	PHC	Semi-structured; Interviewer administered. Cross-sectional.	Adapted from QUOTE	Multidimensional	Likert; 100%	Not stated	Not stated	Not possible
23	Nwaeze *et al* (2013)	239	ANC	Interviewer-administered. Cross-sectional.	Structured questionnaire	Multidimensional	Dichotomous	1. Cross-cultural validation	Logistic regression; OR = 36.50 (CI 3.89-341.65), P<0.05	1. Adequate
24	Olowookere *et al* (2012)	408	Antiretroviral (ARV) clinic	Pre-tested; Interviewer-administered. Cross-sectional	People living with HIV's (PLHIV) assessment of satisfaction with care	Multidimensional (4)	Likert; 98%	Not stated	Not stated	Not possible
25	Iloh *et al* (2012)	400	NHIS clinic	Pre-tested; Structured and interviewer-administered. Cross-sectional	Not stated	Multidimensional (6)	Likert	Not stated	Not stated	Not possible
26	Olawoye *et al* (2012)	366	2 eye clinics	Pre-tested; self-administered. Cross-sectional	Self-developed	Multidimensional	Likert	1. Content validity 2. Cross-cultural validation	Logistic regression	1. Sufficient 2. Adequate
27	Adamu *et al* (2012)	100	Teaching hospital	Pre-tested; Structured, and self-administered. Cross-sectional	Not stated	Not stated	Not stated	1. Cross-cultural validity	Regression analysis, OR = 1.055 (CI 1.013-1.019)	1. Adequate
28	Udo *et al* (2011)	700	Hospital; Obstetric sonographic units.Cross-sectional	Validated instrument; Self-completed	Self- developed	Multidimensional (7)	Likert; 92.60%	Not stated	Not stated	Not possible
29	Mohammed *et al* (2011)	300	NHIS clinic	Pre-tested; Interviewer-administered. Cross-sectional	Adapted from preexisting instruments	Multidimensional (6)	Likert; 93.30%	1. Hypotheses testing		1. Very good
30	Nwabueze *et al* (2011)	150	HIV/AIDS clinic	Pre-tested on ten patients; Interviewer-administered. Cross-sectional	Clinical quality Services Branch of the Bureau of Primary Health Care Questionnaire (BPHCQ)	Multidimensional (6)	Likert; 100%	Not stated	Not stated	Not possible
31	Udonwa *et al* (2010)	425	Primary health facility (PHF), 4 immunization centers	Semi-structured, self-administered. Cross-sectional	Not stated	Multidimensional	Likert; 94.60%	Not stated	Not stated	Not possible
32	Oluwadiya *et al* (2010)	250	Hospital; Accident & emergency (A&E) departments	Validated questionnaire; Interviewer-administered. Cross-sectional	Not stated	Multidimensional	Ordinal, Likert, Dichotomous and open-ended	Not stated	Not stated	Not possible
33	Campell *et al* (2010)	292	Primary health care (PHC) clinic	Interviewer-administered. Cross-sectional	Flow analysis chart modified from COPE	Multidimensional	Not stated	Not stated	Not stated	Not possible

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34	IIiyasu *et al*(2010)	210	Hospital	Pre-tested; structured and interviewer-administered. Cross-sectional	Adapted from previous instruments	Multidimensional	Likert; 95.70%	Not stated	Not stated	Not possible
35	Abiodun (2010)	200	PHC centers and clinics	Interviewer-administered. Cross-sectional	Self-developed from literature	Multidimensional (8)	Likert; 91.5%	1. Cross-cultural validity	Regression analysis	1. Adequate
36	Nwabueze *et al* (2010)	300	2 HIV clinics	Interviewer-administered. Cross-sectional	Clinical quality Services Branch of the Bureau of Primary Health Care Questionnaire (BPHCQ)	Multidimensional	Likert	Not stated	Not stated	Not possible
37	Asekun-Olarinmoye *et al* (2009)	289	Antenatal clinic (ANC).	Questionnaire was developed and pretested in another ANC, semi-structured. Cross-sectional	Not stated	Multidimensional (2)	Likert	Not stated	Not stated	Not possible
38	Orenuga *et al* (2009)	300	Dental clinic	Self-administered. Cross-sectional.	Modified Dental Satisfaction Questionnaire (DSQ)	Multidimensional (5)	Likert	Not stated	Not stated	Not possible
39	Odebiyi *et al* (2009)	639	Physiotherapy outpatient clinics	Self- administered. Cross-sectional	Modified Patient Satisfaction Questionnaire for Physiotherapy (PSQMP).	Multidimensional (6)	Likert; 79.8%	1. Content validity		1. Sufficient
40	Oladapo *et al* (2008)	461	ANC	Pre-tested in 25 women; Structured and interviewer-administered. Cross-sectional	Adapted from a pre-existing validated instrument used by WHO	Multidimensional (7)	98%	Not stated	Not stated	Not possible
41	Fawole *et al* (2008)	395	ANC	Interviewer-administered, semi-structured. Cross-sectional	Not stated	Multidimensional	Not stated	Not stated	Not stated	Not possible
42	Olatunji *et al* (2008)	51	Physiotherapy outpatient clinic	Self-administered. Cross-sectional	Self-developed	Multidimensional	Likert	1. Content validity 2. Reliability 3. Internal consistency	2. Test-retest reliability 3. α=0.93	1. Sufficient 2. Doubtful 3. Inadequate
43	Ugwu *et al* (2007)	92	Hospital; Four ultrasound centers	Questionnaire was drafted and piloted on ten women; Readministered on 92 patients, self completed.Cross-sectional	Not stated	Multidimensional (3)	Likert; 92%	Not stated	Not stated	Not possible
44	Ariba *et al* (2007)	1129	A&E clinic	Pre-tested; Self-administered. Cross-sectional	Not stated	Multidimensional (3)	Likert	Not stated	Not stated	Not possible
45	Balogun (2007)	200	ANC	Interviewer-administered. Cross-sectional	Not stated	Not stated	Not stated	Not stated	Not stated	Not possible

Methodological quality of the assessments

Pre-testing with a patient group was detailed in twenty-one papers as part of the feasibility study, which is a form of validation process. Some of the included studies utilized pre-existing validated questionnaires. However, only seventeen studies assessed one or more measurement properties as defined in the COSMIN checklist. The main properties assessed were: internal consistency, reliability, content validity, cross-cultural validity, hypothesis testing, measurement error and structural validity (Table 2).

As stated in the protocol, [56] information needed to address the study objectives were synthesized from these seventeen studies. Seven out of the seventeen included studies utilized pre-tested instruments that were piloted before commencement of the main survey. Content validity was reported by six studies and it was rated sufficient in these studies. Pilot studies, apart from ensuring feasibility aspects were also carried out to ascertain face and content validity in some studies. [12,19,27] Four studies evaluated structural validity.[12,19,25,32] The rating was either very good or adequate if either confirmatory or exploratory factor analysis

respectively was performed. It was rated inadequate in Afe et al. since none of these analyses was done. Internal consistency was assessed in two of the included studies and the ratings were very good. [19,32] The ratings were doubtful or inadequate when no documented information on unidimensionality/structural validity was given or when only the available Cronbach alpha value was available for a multidimensional total scale respectively. [12,25,32,34] Eight studies assessed cross-cultural validation. Regression analysis was used to evaluate cross-cultural validity in six studies and it was stated that samples were similar in important features apart from the group variable, the rating was therefore adequate for each of the studies. [27,28,31,40,43,48] Chi-square was used in one study to compare the different groups and the rating was inadequate. [26] Osiya et al and Boehmer et al were rated with adequate quality because the reviewers assumed that the approach used was appropriate though not clearly stated. [19,45] The quality of two, out of the three studies that evaluated reliability was rated doubtful because it was unclear that target population were stable between the repeated assessments and that either the time interval between measurements were omitted or inappropriate. [32,34] Two week intervals are usually appropriate for assessment of PROMs. [59] The rating for Agu et al was doubtful because no time interval was stated, despite the fact that test conditions were stated to be similar and patients were also assumed to be stable, thus, applying the 'worst count principle'. [58] Hypothesis testing was meant to establish construct validity and this was rated "adequate" in one of the included studies [38] and "very good" in the remaining three studies that evaluated the measurement property. [25,32,61] The preferred statistic to assess measurement error is standard error of measurement. It was evaluated in only one study and the rating was "adequate" .[62]

The feasibility of the satisfaction questionnaires utilized was ensured through pre-testing in the users as documented in seven of the included studies, the reliability and validity studies were not properly carried out/ documented. Fourteen studies reported good response rates which may be translated as good acceptability for participation (See Table 2).

Thematic areas for the patient satisfaction surveys/ assessment

The principal themes included into the questionnaires were patient-staff relationship, clinic/hospital infrastructure, privacy/confidentiality, convenience as well as waiting time, quality and availability of service, cost of service and overall satisfaction (Table3). The patient-staff relationship is viewed as a broad element comprising of clinical/professional skill, rapport and good communication between patients and the health care staff. Physical facilities, cleanliness of the environment and comfort of the waiting areas were some of the issues incorporated in the clinic/hospital infrastructure domain. Fifteen out of the seventeen included studies investigated patient-staff relationship. Six studies reported on clinic/hospital infrastructure while eleven studies had items on waiting time/convenience. Lack of privacy/confidentiality was reported by only one study, Olatunji et al who reported 100% satisfaction with privacy and confidentiality.[34]

The major areas of dissatisfaction were convenience and waiting time. Up to 62.2% of respondents in one study were dissatisfied with waiting time. [38]

Issues with quality and availability comprised of access to care, information and counselling services, appointment dates and other clinic services. Eleven, out of the seventeen studies, documented high satisfaction with access, availability and quality of care. Cost of service was another area of dissatisfaction reported. However, in one study, 81.0% of women who perceived cost of antenatal care as expensive were satisfied. [43]

TABLE 2. Themes assessed under the included studies

S/N	Studies	Patient-staff relationship	Clinic/Hospital infrastructure	Privacy/Confidentiality	Convenience and waiting time	Quality and availability of service	Cost of service	Overall satisfaction
1	Michael *et al* (2017)	Not stated	Not stated	Not stated	Not stated	75.1-90% were satisfied with clinic services	Dissatisfied. Only 29.7% were satisfied	65.8% were satisfied
2	Ogunlade *et al* (2017)	60% were satisfied with the nurses	37.2% were satisfied	Not stated	37.8% satisfied	Not stated	57.9% satisfied	33% satisfied
3	Osiya *et al* (2017)	High satisfaction. >50% Satisfied	Not stated	Not stated	>50% were satisfied with time	> 50% were satisfied	< 50% were satisfied with cost	>50% were satisfied
4	Boehmer *et al* (2016)	High satisfaction reported	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
5	Afe *et al* (2016)	High satisfaction with staff attitude	Not stated	Not stated	Low satisfaction with waiting time	Not stated	Low satisfaction with cost of service	High satisfaction with overall quality of care
6	Ochonma *et al* (2015)	84.7% were satisfied with good professional conduct (mean values >3.5)	Not stated	Not stated	Neutral to waiting time(mean score= 3.12). Mid-point = 3.5	Satisfied with radiological services (mean values> 3.5)	Not stated	Satisfied (mean score=3.69). The mid-point is 3.5

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7	Agu *et al* (2014)	Poor staff communication (1.6)	Highly satisfied (4.1)	Not stated	Dissatisfied with waiting time and duration of interaction with pharmacist.	Staff availability was high. (3.6)	Not stated	90% were satisfied and would come back if need be.
8	Fatiregun *et al* (2014)	75% were satisfied with the staff attitude. 44-47% were dissatisfied with hospital environment	Not stated	Not stated	75%(urban dwellers, n=52; 55%(rural dwellers, n=20) were dissatisfied with waiting time and 42.3%(urban, 65%(rural) were dissatisfied with waiting area.	87-95% satisfied with vaccination services	Not stated	97-99% were willing to recommend the facility to friends
9	Okoye *et al* (2014)	High satisfaction (4.57±0.57)	Not stated	Not stated	Not stated	High satisfaction with services (>4.2)	Not stated	High satisfaction (4.68±0.60)
10	Adeniyi *et al* (2013)	99.7% satisfied	88.5% satisfied with facilities	Not stated	74.2% satisfied with patient waiting time	92.3% satisfied with the quality of care. Poorly organized services.	83.3% Satisfied with access and cost	88.5% satisfied
11	Nwaeze *et al* (2013)	>80% were satisfied with doctors and nurses attitudes	>60% were satisfied with clinic amenities	Not stated	64.9% who thought that total time spent in the ANC was too long were still satisfied.	>70% were satisfied with routine services/health talk	81.0% who perceived the cost of ANC as expensive was still satisfied.	83.3% would recommend the facility to somebody else.
12	Olawoye *et al* (2012)	High satisfaction recorded in both eye hospitals	Not stated	Not stated	49.5%; 63.7% were satisfied	Not stated	Satisfactory. 76.6%; 96.7%	High satisfaction. 70.6%, 71%
13	Adamu *et al* (2012)	95.8% satisfied with nurses. 65% satisfied with doctors.	65% were satisfied with the cleanliness of the environment	Not stated	50% were satisfied with wait time	Not stated	Not stated	52.1% satisfied
14	Mohammed *et al* (2011)	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	42.1% were satisfied
15	Abiodun (2010)	Moderate satisfaction with empathy	Not stated	Not stated	Not stated	Moderate satisfaction with access to care	Not stated	Moderate satisfaction reported.<6. Max. =7
16	Odebiyi *et al* (2009)	Satisfied with staff conduct (>50). Max. 65	Satisfied with the facility (>21). Max. 35	Not stated	Not stated	Satisfied with accessibility (>24). Max. =35. Satisfied with clinical expertise (>42). Max. 55 Satisfied with appointment (>17). Max. 25	Not stated	Satisfied. (> 39). Max. 50
17	Olatunji *et al* (2008)	100% were satisfied with the physiotherapist's character.	Not stated	100% were satisfied with privacy	98% were satisfied with the time spent on treatment.	Over 95% were satisfied with the services	88% were satisfied with the cost.	98% were satisfied with overall care

IV. DISCUSSION

The findings from this review showed that majority of the included studies made use of multidimensional instruments to assess patient satisfaction with services in Nigerian hospital/clinics. Studies have reported the existence of wide variation in the number of dimensions of instruments used in patient-reported outcome research.[28,29,40,63] In the development of questionnaires, patient input and assessment needs to be included to ensure that the questions are acceptable and appropriate. This can be achieved through pre-testing of the questionnaire before using it in a larger population. Piloting also helps in measuring feasibility of the instrument as well as improving the construction of the items for a better result. The mode of instrument's administration was either self-completed or interviewer-administered. The interview usually took place as the patient was about leaving the hospital/clinic (exit interview). Both methods of administering the survey have their merits and demerits. Interviewer administered questionnaires may have the advantage of increasing the participants' contribution and general response rates. However, less honest results may be produced especially if the researcher is present during the interviewing process (interviewer bias, social desirability bias). In the interviewer-administered questionnaire, respondents' literacy may be less important and the completion of a questionnaire by an intended person is assured. Furthermore, fewer missing answers and a

clarification of the responses can be seen as further advantages. However, this also requires a trained and neutral interviewer without potential conflict of interest. [64]

The self-completed questionnaire allows the respondents to answer the questions themselves (self-administered). The problem of bias is not encountered and less time is spent on administration. It also entails easier questioning of larger numbers of people.

Nevertheless, in both cases, selection bias can occur as a result of increased participation of either those who are particularly dissatisfied with a service or those who are highly satisfied. [60]

Meaningful assessment of patient satisfaction measures can only be done by the use of valid and reliable measurement instruments. [65] It is quite unethical and limited resources are being wasted when research is carried out with outcome measurement instruments of poor or unknown quality. The COSMIN risk of bias checklist was created and validated specifically for evaluating the methodological quality of measures used to assess PROMs such as satisfaction, perception, and quality of life in health research, therefore it is appropriate for this evaluation. This review considered quantitative methodology, that is, questionnaire-based studies. It is documented that use of satisfaction surveys, such as questionnaires, is the most common method of evaluating patient satisfaction. [66] When questionnaires are well designed, accurate results are ensured. Hence, a meaningful patient satisfaction scale should ensure clarity, importance, feasibility and validity. An important assumption on the reliability of a measurement tool is that patients are stable on the construct to be measured when repeated measurements are made. Thus, reliability results depend on good response and completion rates. However, it refers only to the consistency of scores and not to its accuracy. Content validity is so important that if it is rated insufficient, evaluating other properties may not be relevant. [57] The rating of this property is highly subjective; it depends on the judgment of the reviewers. However, the content of the items of an instrument will be such that a sufficient reflection of the construct to be assessed is shown. [59]

Structural validity, internal consistency and cross-cultural validity are properties evaluated when assessing the internal structure of a measurement scale. [59] The three properties were evaluated to show how the different items of a satisfaction questionnaire are related to one another. Internal consistency is normally evaluated using Cronbach's alpha. When its rating is very good, it means that the statistic was calculated for each of the unidimensional scale or subscale. Cross-cultural validation is a property that evaluates the extent to which the usefulness of items on a changed or culturally adapted scale is sufficient enough to show their performance on the original version of the scale. The evaluation was done across culturally different populations and this was widely interpreted. Thus, we did not consider only different ethnic groups or languages as culturally different populations but also different population/group characteristics such as age, sex, patients. Scores of two or more of these groups were compared directly. The preferred statistical analyses are regression or confirmatory factor analysis and differential item functioning analyses. [59]

The findings from this review agree with previous results which documented that there was no gold standard measure of satisfaction of patients with health services. [66–69] A gold standard measure of patient satisfaction has been thought of as having appropriately assessed feasibility, acceptability, reliability and validity. [60] Also making use of different satisfaction tools in the same population (e.g. HIV patients) buttresses the fact that there is no existence of a gold standard measure of satisfaction.

The review, however, identified seven essential themes considered as important in delivering high quality care (Table 3). One of the themes—patient-staff relationship—was reported in fifteen studies. Eleven studies described waiting time/convenience as well as quality/ availability of service as important themes. Cost of service was reported in eight studies and fifteen studies considered overall satisfaction. Willingness to return for necessary repeat procedures and recommendation to friends and relatives were used as measures of overall satisfaction. Undoubtedly, the issue of social desirability bias cannot be ruled out as the participants could be over reporting their satisfaction with the service. [70]

Limitations

Our study considered only quantitative studies in the systematic review. Future studies could also lay stress on qualitative measurements to broaden the view on this matter and investigate potential advantages and disadvantages of certain methodological approaches.

Practice implications

This is the first systematic review on the measurement of satisfaction of Nigerian patients with health service in hospitals/clinics. The identified key themes will enable the development of future satisfaction tools - from the patients' perspective for proper assessment of service quality in healthcare facilities.

Part of good quality management in the Nigeria's health care delivery system requires that patients' assessment be carried out to ascertain their satisfaction with treatment and services or with progress made. [71] Having the assessment done with reliable and validated instruments cannot be overemphasized. Thus the findings from this review are beneficial to the researchers and clinicians as well as the governments. Researchers will endeavor to develop tools that are valid and reliable. Clinicians and other healthcare workers should focus on addressing the areas of dissatisfaction, especially the ones that pertain to them such as long waiting hours in the hospital/clinics. If local and the national government aimed towards a policy that discourage overreliance on out-of-pocket expenditure, patients' satisfaction with health services would improve notably as most patients pay hospital bills from their pockets. Thus, private spending for healthcare services could be reduced markedly.

V. CONCLUSION

The review showed that the assessment of patient satisfaction with health service in Nigerian hospital/clinics utilized multidimensional questionnaires which were either self-completed or interviewer-administered. There was no standardized measure of patient satisfaction within the hospitals and clinics. However, seven predominant domains were identified as being of particular importance to service users: patient-staff relationship, clinic/hospital infrastructure, privacy/confidentiality, convenience/waiting time, quality/availability of service, cost of service and overall satisfaction. The main areas of dissatisfaction were convenience, waiting time and cost of service.

APPENDIX
Details of electronic bibliographic databases search queries

MEDLINE

MEDLINE (via OvidSP) [1,932 hits] access day 20180730	
1. exp Patient centered care/	29. exp Patient Satisfaction/
2. exp Hospitals/	30. acceptabilit*.tw.
3. exp Health Services Research/	31. acceptance.tw.
4. exp Quality of Health Care/	32. attitude?.tw.
5. clinic*.tw.	33. dissatisf*.tw.
6. hospital?.tw.	34. judgement*.tw.
7. patient?.tw.	35. satisf*.tw.
8. outpatient?.tw.	36. view?.tw.
9. inpatient?.tw.	37. opinion*.tw.
10. (medical adj1 (treatment or treatments or service or services or centre or centres or center or centers)).tw.	38. perception?.tw.
	39. perceived.tw.
11. (health adj1 (service or services or centre or centres or center or centers)).tw.	40. preference?.tw.
	41. preferred.tw.
12. health?care.tw.	42. or/29-41
13. health?system?.tw.	43. exp Empirical Research/
14. or/1-13	44. exp Data Collection/
15. Nigeria.cp.	45. assessment?.tw.
16. Nigeria.tw.	46. evaluation?.tw.
17. nigerian?.tw.	47. intervention?.tw.
18. Lagos.tw.	48. survey*.tw.
19. Kano.tw.	49. study.tw.
20. Ibadan.tw.	50. studies.tw.
21. "Benin City".tw.	51. trial.tw.
22. Jos.tw.	52. trials.tw.
23. Ilorin.tw.	53. questionnaire?.tw.
24. Kaduna.tw.	54. or/43-53
25. Abuja.tw.	55. 14 and 28 and 42 and 54
26. Enugu.tw.	56. limit 55 to ed=”20070101-20180730”
27. Warri.tw.	57. (animals not (humans and animals)).sh.
28. or/15-27	58. 56 not 57

EMBASE

EMBASE (via OvidSP) [1,883 hits] access day 20180730	
1. exp patient care/	29. exp patient satisfaction/
2. exp hospital/	30. acceptabilit*.tw.
3. exp health service/	31. acceptance.tw.
4. exp health care quality/	32. attitude?.tw.
5. clinic*.tw.	33. dissatisf*.tw.
6. hospital?.tw.	34. judgement*.tw.
7. patient?.tw.	35. satisf*.tw.
8. outpatient?.tw.	36. view?.tw.
9. inpatient?.tw.	37. opinion*.tw.
10. (medicaladj (treatment or treatments or service or services or centre or centres or center or centers)).tw.	38. perception?.tw.
	39. perceived.tw.
11. (healthadj (service or services or centre or centres or center or centers)).tw.	40. preference?.tw.
	41. preferred.tw.
12. health?care.tw.	42. or/29-41
13. health?system?.tw.	43. exp empirical research/
14. or/1-13	44. exp health care survey/
15. Nigeria.cp.	45. assessment?.tw.
16. Nigeria.tw.	46. evaluation?.tw.
17. nigerian?.tw.	47. intervention?.tw.
18. Lagos.tw.	48. survey*.tw.
19. Kano.tw.	49. study.tw.
20. Ibadan.tw.	50. studies.tw.

21. "Benin City".tw. 22. Jos.tw. 23. Ilorin.tw. 24. Kaduna.tw. 25. Abuja.tw. 26. Enugu.tw. 27. Warri.tw. 28. or/15-27	51. trial.tw. 52. trials.tw. 53. questionnaire?.tw. 54. or/43-53 55. 14 and 28 and 42 and 54 56. 55 and 2007:2018.(sa_year). 57. limit 56 to (animals or medline) 58. 56 not 57

CINAHL

CINAHL (via EBSCOhost) [352 hits] access day 20180730	
S1. MH "Patient Care+" S2. MH "Hospitals+" S3. MH "Health Care Delivery+" S4. MH "Health Services+" S5. MH "Quality of Health Care+" S6. TX clinic# S7. TX hospital# S8. TX patient# S9. TX outpatient# S10. TX inpatient# S11. TX (medical N1 (treatment OR treatments OR service OR services OR centre OR centres OR center OR centers)) S12. TX (health N1 (service OR services OR centre OR centres OR center OR centers)) S13. TX health#care S14. TX health#system# S15. (S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14) S16. MH "Nigeria" S17. TX Nigeria S18. TX Nigerian# S19. TX Lagos S20. TX Kano S21. TX Ibadan S22. TX "Benin City" S23. TX Jos S24. TX Ilorin S25. TX Kaduna S26. TX Abuja S27. TX Enugu S28. TX Warri S29. (S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28)	S30. MH "Patient Satisfaction" S31. TX acceptability# S32. TX acceptance# S33. TX attitude# S34. TX dissatisf* S35. TX judgement* S36. TX satisf* S37. TX view# S38. TX opinion* S39. TX perception# S40. TX perceived S41. TX preference# S42. TX preferred S43. (S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42) S44. MH "Empirical Research" S45. MH "Data Collection+" S46. TX assessment# S47. TX evaluation# S48. TX intervention# S49. TX survey* S50. TX study S51. TX studies S52. TX trial S53. TX trials S54. TX questionnaire# S55. (S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54) S56. (S15 AND S29 AND S43 AND S55) [Limiters - Published Date: 20070101-20180831; Exclude MEDLINE records] S57. MH "Animal Studies" S58. S56 NOT S57

AJOL*

AJOL (via African Journals OnLine) [18 hits] access day 20180730
(clinic or clinics or hospital or hospital or patient or patients or ((medical or health) and (service or services)) and (nigeria or nigerian or nigerians or lagosor kano or ibadan or "benin city" or jos or ilorin or kaduna or abuja or enugu or warri))

* search query limited to 255 characters

PSYCINFO

PSYCINFO (via OvidSP) [242 hits] access day 20180731	
1. clinic*.tw. 2. hospital?.tw. 3. patient?.tw. 4. outpatient?.tw. 5. inpatient?.tw. 6. (medical adj1 (treatment or treatments or service or services or centre or centres or center or centers or quality)).tw. 7. (health adj1 (service or services or centre or centres or center or centers or quality)).tw. 8. health?care.tw. 9. health?system.tw. 10. or/1-9 11. Nigeria.cp. 12. Nigeria.tw. 13. nigerian?.tw. 14. Lagos.tw. 15. Kano.tw.	25. acceptabilit*.tw. 26. acceptance.tw. 27. attitude?.tw. 28. dissatisf*.tw. 29. judgement*.tw. 30. satisf*.tw. 31. view?.tw. 32. opinion*.tw. 33. perception?.tw. 34. perceived.tw. 35. preference?.tw. 36. preferred.tw. 37. or/25-36 38. assessment?.tw. 39. evaluation?.tw. 40. intervention?.tw. 41. survey*.tw.

16. Ibadan.tw. 17. "Benin City".tw. 18. Jos.tw. 19. Ilorin.tw. 20. Kaduna.tw. 21. Abuja.tw. 22. Enugu.tw. 23. Warri.tw. 24. or/11-23	42. study.tw. 43. studies.tw. 44. trial.tw. 45. trials.tw. 46. questionnaire?.tw. 47. or/38-46 48. 10 and 24 and 37 and 47 49. 48 and 2007:2018.(sa_year).

CDSR

CDSR (via Wiley) [472 hits] access day 20180731	
1. MeSH descriptor: [Patient centered care] explode all trees 2. MeSH descriptor: [Hospitals] explode all trees 3. MeSH descriptor: [Health Services Research] explode all trees 4. MeSH descriptor: [Quality of Health Care] explode all trees 5. clinic*:ti,ab,kw 6. hospital?:ti,ab,kw 7. patient?:ti,ab,kw 8. outpatient?:ti,ab,kw 9. inpatient?:ti,ab,kw 10. (medical NEAR/1 (treatment or treatments or service or services or centre or centres or center or centers)):ti,ab,kw 11. (health NEAR/1 (service or services or centre or centres or center or centers)):ti,ab,kw 12. health*care:ti,ab,kw 13. health*system:ti,ab,kw 14. #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 15. Nigeria:ti,ab,kw 16. nigerian?:ti,ab,kw 17. Lagos:ti,ab,kw 18. Kano:ti,ab,kw 19. Ibadan:ti,ab,kw 20. "Benin City":ti,ab,kw 21. Jos:ti,ab,kw 22. Ilorin:ti,ab,kw 23. Kaduna:ti,ab,kw 24. Abuja:ti,ab,kw 25. Enugu:ti,ab,kw 26. Warri:ti,ab,kw 27. #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or#25 or #26	28. MeSH descriptor: [Patient Satisfaction] explode all trees 29. acceptabilit*:ti,ab,kw 30. acceptance:ti,ab,kw 31. attitude?:ti,ab,kw 32. dissatisf*:ti,ab,kw 33. judgement*:ti,ab,kw 34. satisf*:ti,ab,kw 35. view?:ti,ab,kw 36. opinion*:ti,ab,kw 37. perception?:ti,ab,kw 38. perceived:ti,ab,kw 39. preference?:ti,ab,kw 40. preferred:ti,ab,kw 41. #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 42. MeSH descriptor: [Empirical Research] explode all trees 43. MeSH descriptor: [Data Collection] explode all trees 44. assessment?:ti,ab,kw 45. evaluation?:ti,ab,kw 46. intervention?:ti,ab,kw 47. survey*:ti,ab,kw 48. study:ti,ab,kw 49. studies:ti,ab,kw 50. trial:ti,ab,kw 51. trials:ti,ab,kw 52. questionnaire?:ti,ab,kw 53. #42 or #43 or #44 or #45 or #46 or #47 or #48 or #49 or #50 or #51 or #52 54. #14 and #27 and #41 and #53 Publication Year from 2007 to 2018, in Cochrane Reviews (Reviews and Protocols)

DARE

DARE (via Wiley) [421 hits] access day 20180731
1. (clinic or clinics or hospital or hospitals or patient or patients or medical or health or service or quality):ti,ab,kw 2. (acceptability or acceptance or attitude or attitudes or dissatisfaction or dissatisfactions or dissatisfied or judgement or judgements or judgemental or satisfaction or satisfactions or satisfied or view or views or opinion or opinions or perception or perceptions or perceived or preference or preferences or preferred):ti,ab,kw 3. (assessment or assessments or evaluation or evaluations or evaluating or intervention or interventions or survey or surveys or study or studies or trial or trials or questionnaire or questionnaires):ti,ab,kw 4. #1 and #2 and #3 Publication Year from 2007 to 2018, in Other Reviews

HTA

HTA (via Wiley) [65 hits] access day 20180731
1. (clinic or clinics or hospital or hospitals or patient or patients or medical or health or service or quality):ti,ab,kw 2. (acceptability or acceptance or attitude or attitudes or dissatisfaction or dissatisfactions or dissatisfied or judgement or judgements or judgemental or satisfaction or satisfactions or satisfied or view or views or opinion or opinions or perception or perceptions or perceived or preference or preferences or preferred):ti,ab,kw 3. (assessment or assessments or evaluation or evaluations or evaluating or intervention or interventions or survey or surveys or study or studies or trial or trials or questionnaire or questionnaires):ti,ab,kw 4. #1 and #2 and #3 Publication Year from 2007 to 2018, in Technology Assessments

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