

Identifying Primary Health-Care Challenges using the Importance–Performance Analysis: Implications for a Low- and Middle-Income Country

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Abstract

Background: Including patient's evaluation in the comprehensive measurement of primary health-care (PHC) performance is a valid and reliable approach for the assessment and improvement of local PHC system. **Aim:** This study demonstrates the use of the importance–performance analysis (IPA) for identifying challenges in PHC centers in Obio-Akpor. **Materials and Methods:** This was a quantitative survey of first-time visitors to four PHC centers in Obio-Akpor. A total of 337 participants were selected from a two-stage sampling approach and administered the Patient Evaluation Scale which was structured to elicit their ratings on the importance of PHC centers' attributes before and the performance on these attributes after their encounter with the facility. Descriptive and inferential statistics were performed using the SPSS version 21, and PHC centers' attributes were aggregated across each of the four IPA quadrants. **Results:** The response rate was 89% and the Cronbach's alpha coefficient was 0.91 and 0.94 for the importance and performance measurement scales, respectively. More of the respondents were below 40 years (87.7%), female (73.7%), and currently married (69.3%). Observed areas of concentration for PHC improvement were staff availability during operating times, ease of payment, waiting time, convenience of operating hours, and availability of electricity in the facility. **Conclusion:** Findings provide evidence of patients' concerns in the local PHC system. Subsequent validation and focused interventions aimed at resolving identified challenges can positively influence the demand and social relevance of PHC in this setting.

Keywords: Importance–performance analysis, Nigeria, patients' priorities, patients' views, primary health care

INTRODUCTION

Organizing primary health-care (PHC) services around patients' needs and expectations require their active participation in the design, delivery, and evaluation of PHC services. Users' participation in PHC can be achieved through their empowerment following the elicitation of their views for continuous quality improvement and system redesign.^[1] The level of users' empowerment and participation in health care varies across countries and reflects the level of modernization of societies.^[2] Achieving client-focused health-care provisions require users' feedback and influences dictating changes in the provision of services across different practice settings.^[3]

Strategies for enhancing the effectiveness and efficiency of PHC constitute important aspects of ongoing discourse in health-care reforms both in developed and developing

countries alike. This is more pertinent because the various promotive, preventive, curative, and rehabilitative services offered through the PHC system can address most of the health needs of the population^[4] and the PHC approach is inarguably the most cost-effective strategy for enhanced health outcomes/coverage of critical health interventions.^[5]

A critical pillar in ongoing reforms in Nigeria is improving the role of the patient in the planning, implementation, and

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How to cite this article: Ogaji DS. Identifying primary health-care challenges using the importance–performance analysis: Implications for a low- and middle-income country. Niger J Med 2022;31:562-8.

Submitted: 14-Jul-2022

Revised: 16-Sep-2022

Accepted: 03-Oct-2022

Published: 29-Nov-2022

Access this article online

Quick Response Code:



Website:
www.njmonline.org

DOI:
10.4103/NJM.NJM_83_22

evaluation of health services.^[6] The goal is to deliver PHC services that revolve around people's needs and expectations as well as improve public participation in health care delivery.^[2] The involvement of patients in the assessment and improvement of health care has sound ethical, legal, philosophical, democratic, and practical significance.^[3,7] It also supports the entrenchment of public ownership and patronage of PHC system as the public will more likely pay and support a system that they have the powers to influence how it is managed.^[3]

Reliance on evidence obtained from end users for decision-making is quintessential in focused improvement of PHC systems. In this regard, the effective management of the PHC system depends on the ability to measure performance, identify gaps, and implement evidence-based solutions that ensure that services meet the needs and expectations of the users of such services.^[7] Recognizing the needs, preferences, and expectations of the patients during quality improvement interventions will ensure that the PHC centers are redesigned to meet users' expectations and enhance the social relevance of these PHC centers. The conduct of patient evaluation of the structure, process, and outcome of health-care system is valid, measurable, and useful for the implementation of patient-focused quality improvement in PHC systems.^[3,7-9]

There are several approaches for measuring patients' views on health care, but the importance–performance analysis (IPA) originally developed as a business technique is now widely applied in health care because of its practical application in developing effective strategies for prioritizing system improvement in line with clients' preferences.^[10] This is grounded in service theory that involves methods for measuring and interpreting service users' expectations, perceptions, and gaps. The IPA four-quadrant matrix [Table 1] depicts ratings on importance in the Y-axis and performance in the X-axis. The top right quadrant contains attributes of high importance for which the PHC center is rated to perform highly while the top left quadrant shows aspects of the system that are important but rate of low performances. The entire IPA matrix generates a quick overview of how well patients' concerns are met along known attributes of the PHC systems as well as offers direction for resource allocation and policymaking.^[10,11]

The deployment of innovative approaches to enhancing large-scale patient participation in their health care is still rudimentary in Nigeria.^[7] This study demonstrates how priorities for interventions can be deduced from the importance and performance ratings of PHC patients.

MATERIALS AND METHODS

Study participants

This study was done in the PHC Rumuigbo, PHC Rumuodomaya, PHC Rumuolumeni, and PHC Rumueme which are only four of the 12 PHC centers located in Obio-Akpor Local Government

Table 1: Meaning and implications of quadrants in the importance–performance analysis matrix

Quadrant	Meaning	Implications
1 (keep up the good work)	High importance and high performance	The patients value these attributes and are satisfied with the PHC performance on them. Priority requiring immediate action
2 (possible overkill)	Low importance and high performance	The patients place low value on these attributes although the PHC centers perform very well in them. Probably being overemphasized
3 (low priority)	Low importance and low performance	Patients place less value on these attributes and the PHC centers perform poorly as well. Probably needs no improvement
4 (concentrate here)	High importance and low performance	There is an urgent need to investigate these aspects for the interest of the patients. Needs urgent attention for improvement

PHC: Primary health-care

Area of Rivers State. The study population included only first-time visitors for outpatient services in four PHC centers in Obio-Akpor.

Study method

This was a quantitative research study.

Sample size determination

This study sought to establish if a difference exists between patients' assessment of the importance and perception of the performance across PHC center attributes in Obio-Akpor Local Government Area of Rivers State. The minimum sample size for this paired analysis was calculated using a formula for comparative (paired) design with continuous data:^[12]

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 \times \sigma^2}{d^2} \text{ where } n = \text{sample size and } \sigma = \text{estimate}$$

of standard deviation of the population. For a 5-point scale, this is calculated as 5 (inclusive range of scale) divided by 4 (number of standard deviation) = 1.25;^[12] $Z_{\alpha/2}$ (standard normal deviation corresponding to selected α level of 0.025 in each tail = 1.96), Z_{β} (desired power typically 0.84 for 80% power), and d (difference of 5% in scores equivalent to 0.2 units on a 5-point rating scale). Provision was made for a 10% increase in the calculated minimum sample size to accommodate nonresponses or inappropriately filled questionnaires. This resulted in a minimum sample size of 337 respondents for this study.

Sampling methodology

The two-stage, simple random sampling involved the selection of four from the sample frame of 12 health centers by balloting in stage 1. In the second stage, first-time visitors were identified at the outpatients' reception from the congregation of all those registered for consultation with the health providers by 10 am each day during the data collection. The convenience sampling technique deployed in stage 2 involved the recruitment of these consecutive first-time visitors who responded to the

announcement and gave their consent to participate in the study.

Study instrument

The Patient Evaluation Scale (PES) is a structured, closed-ended, self-administered questionnaire. The multiphasic, iterative, mixed methods approach of development of PES underscored its contextual relevance, acceptability, reliability, and validity for patient evaluation of PHC in this setting.^[13] The questionnaire has three sections: sociodemographic data, importance rating, and performance rating of the PHC center using 24 attributes. The sociodemographic data captured in the questionnaire included the age, sex, marital status, level of education, occupation, religion, treatment received in the health centre, the health professional that attended to the patients during the visit, rating of current health status, duration of contact with PHC facility, and payment for health care.

The rating on importance is based on the value first-time visitors place on 24 attributes of PHC along a 5-point unipolar response scale (1 = not important at all, 2 = not quite important, 3 = important, 4 = very important, and 5 = extremely important) as soon as they arrive the health centre. The rating on performance examined how well the first-time visitor perceived the PHC centre to have performed along the same 24 attributes on a 5-point unipolar response scale (1 = poor, 2 = acceptable, 3 = good, 4 = very good, and 5 = excellent) at the end of all the activities making the visit encounter.

Data analysis

The data were entered and analyzed with the Statistical Package for the Social Sciences (SPSS) software, version 21. (SPSS Inc, Chicago, IL, USA). The internal consistency reliability of the questionnaire was estimated using the Cronbach's alpha coefficient. Acceptability of the scale was determined by the response rates to the entire questionnaire and the individual items.

The IPA quadrants were delineated by the mean scores of the data set along the importance and performance axes. Positive attributes are situated in quadrants 1 and 3 while negative attributes are situated in quadrants 2 and 4. Descriptive statistics was used to summarize the patients' and health centres' characteristics which were presented as frequencies mean, standard deviation, gaps, and ranking of the percentage scores from IPA. The mean gap was the difference between the clients' scores on the importance and performance scales. Multi-level linear regression analysis was used to identify patient-related and clinics' factors associated with the scores along the importance and performance scales as the individual patient scores were nested within health facilities. $P \leq 0.05$ was considered statistically significant.

RESULTS

A total of 300 from the 337 administered questionnaires were completed and returned giving a response rate of 89%. The proportionate representation from the four PHC centers

ranged from 15.3% to 33.3%. The Cronbach's alpha coefficient was 0.91 and 0.94 for the importance and performance measurement scales, respectively.

From Table 2, more of the respondents were <40 years of age (87.7%), female (73.7%), and currently married (69.3%). While most of the patients in this study had a postprimary level of schooling (91%), only 6.7% were enrolled in the social health insurance scheme.

From Table 3, "safety" had the highest mean score on the importance scale while attractiveness of the environs had the lowest ranking attributes on the importance scale. The highest mean rating on the performance scale was related to "neatness of the health centres" while the "time spent to arrive the centre from home" had the least ranking. The highest mean gap of 1.32 was related to travel time to the health centre while the least gap of 0.6 was associated with the attractiveness of the health centre environs.

Figure 1 shows the situation of the primary health centres from the entire datasets. Areas the stakeholders need to concentrate upon are staff availability during operating times, ease of payment, waiting time, convenient operating hours, and availability of electricity in the facility. Areas of possible overkill were space in the reception and the provisions for seating at the reception.

Figure 2 shows the attributes that fell into the quadrants of the IPA matrix in the PHC centers studied. There were substantial differences in the positions of these attributes in the matrix, and the observed priorities varied from one health centre to the other. While Rumuigbo and Rumuodomaya health centres

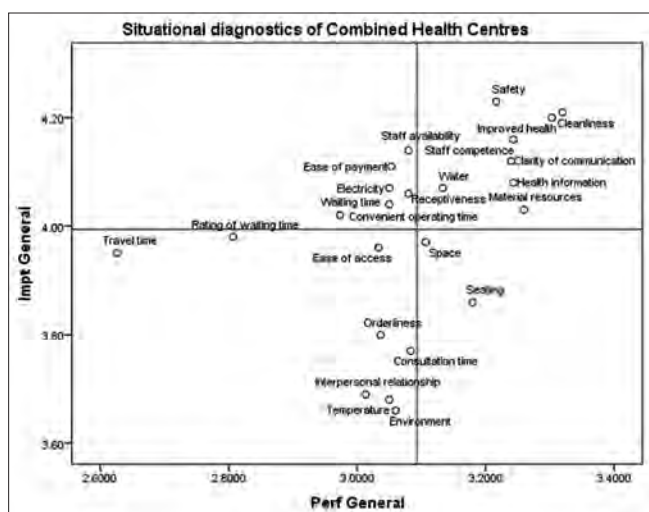
Table 2: Sociodemographic characteristics of respondents

Variable	Frequency
Age (years)	
<40	263 (87.7)
≥40	37 (12.3)
Sex	
Female	221 (73.7)
Male	79 (26.3)
Married	
No	92 (30.7)
Yes	208 (69.3)
School	
≤ primary	27 (9.0)
> primary	273 (91.0)
Employed	
No	122 (40.7)
Yes	178 (59.3)
Insured	
No	280 (93.3)
Yes	20 (6.7)
Perceived health	
Poor/fair	63 (21.0)
Good/excellent	237 (79.0)

Table 3: Importance and performance of primary health-care attributes

PHC attribute	Importance	Performance	Mean gap	Potential action
Electricity supply	4.07	3.05	1.02	Concentrate here
Safety of care	4.23	3.22	1.01	Keep up the good work
Neatness of the facility	4.21	3.32	0.89	Keep up the good work
Health outcome	4.20	3.30	0.90	Keep up the good work
Staff competence	4.16	3.24	0.92	Concentrate here
Staff availability at post	4.14	3.08	1.06	Concentrate here
Clarity of communication	4.12	3.24	0.88	Keep up the good work
Ease of payment for services	4.11	3.05	1.06	Concentrate here
Health information	4.08	3.24	0.84	Keep up the good work
Water supply	4.07	3.13	0.94	Keep up the good work
Receptiveness of staff	4.06	3.08	0.98	Concentrate here
Convenience of operating time	4.04	3.05	0.99	Concentrate here
Center's consumables	4.03	3.26	0.77	Keep up the good work
Waiting time	4.02	2.97	1.05	Concentrate here
Rating on waiting time	3.98	2.81	1.17	Low priority
Space in waiting area	3.97	3.11	0.86	Possible overkill
Ease of access to care	3.96	3.03	0.93	Low priority
Travel time to the facility	3.95	2.63	1.32	Low priority
Seats at waiting area	3.86	3.18	0.68	Possible overkill
Orderliness	3.80	3.04	0.76	Low priority
Consultation time	3.77	3.08	0.69	Low priority
Interpersonal relationship	3.69	3.01	0.68	Low priority
Temperature inside facility	3.68	3.05	0.63	Low priority
Attractive environs	3.66	3.06	0.6	Low priority

PHC: Primary health care

**Figure 1:** Patients' priorities for PHC, PHC: Primary health care

(HCs) have only two items each that the local managers must concentrate, Rumuigbo and Rumuolumeni HCs had five each.

From Table 4, the multi-level linear regression model which included patient- and system-related factors that could be associated with the importance scoring was significant ($F [11, 287] = 6.03; P \leq 0.001$), and explained about 15.7% of the variance of the importance score. Similarly, the model for performance scoring was significant ($F [11, 288] = 12.07; P < 0.001$) accounted for about 28.9% of the variance in the

performance scoring. Participants who were married ($B = 0.12$, 95% confidence interval [CI]: 0.01, 0.24; $P = 0.044$) and those with postprimary level of schooling ($B = 0.21$ 95% CI: 0.04, 0.39; $P = 0.017$) reported significantly higher importance scores. Similarly, those who were married ($B = 0.2$, 95% CI: 0.09, 0.32; $P = 0.001$) and those with good–excellent self-rated health status ($B = 0.37$, 95% CI: 0.25, 0.49; $P < 0.001$) reported significantly higher performance scores.

DISCUSSION

This study was designed to identify priorities for interventions in PHC from the importance and performance ratings of PHC patients, and revealed areas of concentration for improving the effectiveness and efficiency of the local PHCs as: waiting time, operating time, ease of payment, availability of power, and availability of staff. The marital status of the patients was a consistent factor associated with their ratings on the IPA scale.

The contextual relevance of the items in the scale used in this study was underpinned by their development from a review of the literature and qualitative exploration of patients' expectation from PHC in the local setting.^[14] The content of the questionnaire compares favorably with the broader quality dimensions of PHC such as responsiveness, interpersonal communication, technical effectiveness, and whole-person care.^[15] This underscores the fact that public interventions are more likely to be socially beneficial when indicators that are

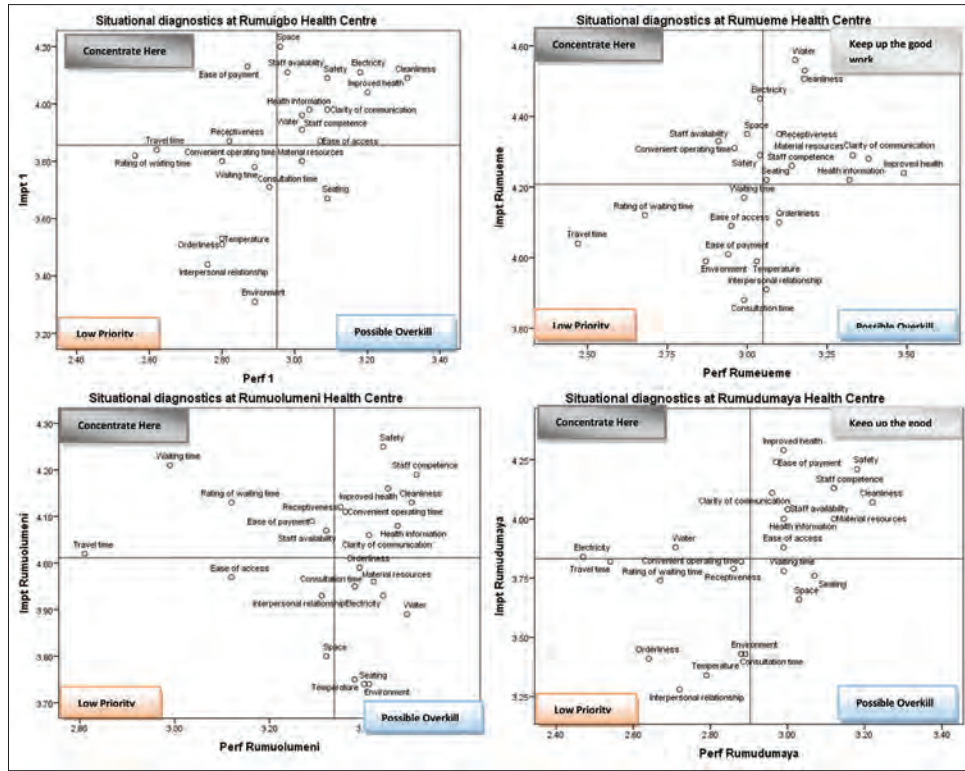


Figure 2: Patients’ priorities for each PHC center, PHC: Primary health-care

relevant to the consumer are used to measure performance and implement improvements.^[2]

Among areas to concentrate from the study findings, staff availability and waiting time had the widest gaps. Challenges with PHC systems related to service availability and accessibility have been reported in earlier studies in this setting.^[14,16] Although this study did not explore reasons while essential service providers were not available at their duty posts, mitigating these challenges of punctuality and absenteeism would require improved supervision support to health workers as well as the implementation of improved access strategies including measuring demands for service by the local population, matching these demands with the local capacity of the providers, and having contingency plans in the event of discrepancies in demand and supply.^[16-18]

It is not surprising that operating time and ease of making payments were identified as aspects requiring interventions. Most PHC centers open for operations at times often outside the ease of patients who are largely self-employed or engaged with small private firms. The problem of operating times of PHC facility is more pathetic in settings where PHC consultations resume late and run for a short time much less than what is provided for under the public service regulations. There are reports of limited time allowed for patients to have consultations with the health workers because these health workers come late to work and the established protocol at the health facilities restricts acceptance of new patients after midday.^[14] With unfavorable operating times, patients are

often faced with the dilemma of attending to their businesses or accommodate the cost of leaving out business completely to seek care at the PHC facilities.

Implications of the finding

There have been substantial investments by the federal, state, and local government authorities in Nigeria to strengthen local PHC services and improve access to health care. Health system strengthening over the years, is driven by the need to achieve universal health coverage, evolve system resilience, and assure health security for all. More often, the conception, design, and implementation of PHC interventions are top-down, and supply driven resulting in the creation of “one coat fit all” strategies rather than the adoption of bottom-up, demand-driven strategies which will recognize the peculiarities in various settings, and the changing priorities of end users of PHC services. As the consensus on the need to redesign PHC systems around peoples’ needs, priorities and expectations gains momentum, the IPA approach will facilitate its achievement and empower PHC patients in low-and-middle income countries. Furthermore, undertaking quality improvement actions using client-driven data have the tendencies to improve client ownership and make PHC systems more socially relevant and responsive to the current and changing needs of the population.

Indeed, the patient and the public are empowered when they gain greater control over decisions and actions affecting their health.^[19] Health systems’ manager should seek opportunities for public involvement in health policy and decision-making during planning, implementation, and evaluation of health

Table 4: Association between patients' characteristics and importance–performance ratings

Variable-baseline	Importance			Performance		
	Mean	B coefficient	P	Mean	B coefficient	P
Age (years)						
<40	4.02	-	0.266	3.14	-	0.095
≥40	3.80	-0.10		2.78	-0.15	
Sex						
Female	4.05	-	0.097	3.13	-	0.909
Male	3.83	-0.10		2.99	0.01	
Married						
No	3.82	-	0.044	2.92	-	0.001
Yes	4.06	0.12		3.17	0.20	
School						
≤ primary	3.69	-	0.017	2.98	-	0.763
> primary	4.02	0.21		3.11	-0.03	
Employed						
No	3.93	-	0.398	3.06	-	0.306
Yes	4.03	0.05		3.12	0.06	
Contact (year)						
< one	3.99	-	0.940	3.17	-	0.034
≥ one	3.99	0.01		2.99	-0.11	
Insured						
No	3.98	-	0.322	3.09	-	0.422
Yes	4.08	0.11		3.10	0.08	
Perceived health						
Poor/fair	3.81	-	0.126	2.73	-	<0.001
Good/excellent	4.04	0/10		3.19	0.37	
Adjusted R ² (SE)						
Model 1		0.115 (0.43)			0.224 (0.44)	
Model 2		0.157 (0.42)			0.289 (0.42)	

SE: Standard error of the adjusted R²

interventions.^[3,20] Considering the nearness of the PHC system to where people live and work as well as the emphasis on promotive and early intervention in the PHC approach, a country's PHC system remains the most cost-effective strategy for health system strengthening and the achievement of long-term improvement in health outcomes of the population.

The availability of valid and contextually relevant scales like the PES^[14] will enhance the effectiveness of conducting regular patient-based review of PHC and implementation of the patient scorecard in resource-constrained settings. The availability of valid and reliable measures like the PES will bolster administrative policies aimed at institutionalizing periodic large-scale patient surveys, benchmarking, and tracking performance of PHC facilities through the patients' scorecard. This is in addition to the application of objective means of early identification and remediation of problems in Nigeria's PHC system.^[7]

The IPA is an easy-to-apply approach to uncover the needs of specific PHC center making it possible to undertake patient-focused interventions. While the debate on the conceptualization and clarity of the IPA framework is ongoing,^[11] this technique presents a cost-effective approach to prioritizing PHC system improvement in a resource-constrained setting. There is, however, a need to establish thresholds that would

support client-driven benchmarking and performance ranking of PHC facilities to enhance the timely identification and remediation of problems in Nigeria's PHC system. The IPA approach is recommended for policymakers and practitioners who are interested in patient-focused quality improvement using clear and simple ways for preliminary identification of gaps in local PHC systems, especially in settings where PHC facilities are predominant outlets for delivering health care to the population.

Limitations of the study

Although the internal consistency reliability of the measure used in this study was good, this study was limited by the collection of data from only four PHC centers located in a largely urban local government area. This places restrictions on the generalization of the findings to rural settings. Furthermore, the use of the mean of the dataset in constructing the IPA grids in this study, showed two-thirds of the PHC attributes in the study as "positive" along the importance scale because of the threshold adopted and the dimensionality of the response scale.

CONCLUSION

PHC systems that are responsive to the preferences, needs, and values of patients can evolve from focused elicitation

of patients' experience, their engagement in their health care delivery, and undertaking reforms based on the extent of departure from patient-centric inklings. This study which demonstrated the use of the IPA approach in the Nigerian PHC system revealed the gaps from the patients' perspectives. The use of these patient-reported gaps for quality improvement can positively influence the demand and social relevance of PHC in this setting.

Acknowledgments

The author is grateful to staff who assisted and clients of the four primary health-care facilities who participated in the data collection for this research. Special thanks to the field assistants – Ajiri Clementina Agbate, Nkiruka Ahiakwo, and Jeremiah Onyinye Amadi.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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