Health System Responsiveness and Associated Factors among Out Patients in North Wollo Public Hospitals, North East Ethiopia

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Abstract

Background: Global disease has sparked renewed interest in universal health coverage in high-income countries. Still, the quality of care has received little attention. Numerous studies have analyzed health system responsiveness and related concepts. However, fewer studies have applied the concept for the evaluation of specific healthcare delivery structures. This study aimed to assess the level of perceived health system responsiveness to patients in North Wollo public hospitals to analyze the determinants of health system responsiveness.

Objective: This study aims to assess health system responsiveness among patients visiting North Wollo public hospitals.

Methods: Institution-based cross-sectional study among 758 patients was conducted at North Wollo public hospitals from July to September 2023. Multi-stage sampling technique was used to select the study population. A structured questionnaire was used as a data collection tool and the data was entered in Epi-data and analyzed using SPSS version 25.0. Both descriptive and inferential statistics were applied to present the findings. The association between dependent and independent variables was assessed by binary and multivariable logistic regression.

Results: The overall health system responsiveness performance of the study was 63.8%. There was a high good responsiveness performance for the basic confidentiality domain (73.6%), dignity domain (69.7%) and communication domain (63.9%). More than half (53.8%) of the respondents had good satisfaction. Regarding patient health quality, more than three-fourths (86.7%) had good perceived patient health quality. Patients' satisfaction and out-of-pocket payment for transport to reach the health facility were identified as factors affecting the performance of health system responsiveness.

Conclusion: Overall, health system responsiveness performance was higher than in a case-specific study in Ethiopia. This study revealed that the health system responsiveness has differed across domains. Accordingly, of the seven domains that were measured, confidentiality and dignity performed better than other domains.

Keywords: Health System Responsiveness (HSR) • Nongovernmental Organization (NGO) • World Health Organization (WHO)

Abbreviations: AIDS: Acquired Immune Deficiency Virus; HIV/AIDS: Human Immune Deficiency Virus/Acquired Immune Deficiency Disease Syndrome; HS: Health Systems; HSR: Health Systems Responsiveness; NGO: Nongovernmental Organization; SPSS: Statistical Package for Social Sciences; USA: United States of America; WHO: World Health Organization

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Introduction

Health System Responsiveness (HSR) is measured in terms of how successfully they respond to the demands of their clients and the surroundings in which they are treated, which is referred to as the clients' universally legitimate expectations [1]. Health system responsiveness is a separate, complicated and understudied idea. This may explain why there aren't any complete frameworks that look beyond the normative aspects of health services' responsiveness and it also warrants investigating responsiveness as a separate phenomenon [2].

The health care system is widely defined as "all actions whose primary intent is to produce health." Conceptually, the responsiveness measure seeks to assess how responsive the entire health-care system is to the entire population [3].

Responsiveness relates to a system's ability to respond to the legitimate expectations of potential users about non-health enhancing aspects of care and in broad terms can be defined as how individuals are treated and the environment in which they are treated encompassing the notion of an individual's experience of contact with the health system [4]. In environments with limited resources, where many people lack the financial means to get private health care, it is crucial to use clients' views to pinpoint system flaws and gauge how responsive it is to their requirements [5].

The HSR domains are significant determinants of how well HS performs, how patient-centered healthcare is and how well clients' reasonable expectations are satisfied [6]. Studies show that the higher the HSR, the greater the chances of treatment success, meeting the client's expectations and contentment with the services [7]. Person-centeredness of healthcare is invaluable for successful treatment outcomes in medical conditions associated with chronic health impairments, where lifelong treatments are recommended and adherence is crucial [8].

Nearly half of the world's population cannot get the necessary healthcare each year and millions of people are pushed into extreme poverty as a result of exorbitant out-of-pocket medical costs. Despite significant global efforts, the population's health state is still failing on a fundamental level. A major focus on pathways, tasks and documentation has taken the place of the traits of caring, respect and compassion that serve as the cornerstone of care delivery and the human elements that define it [9,10].

The problem of limited access to high-quality healthcare is related to the inefficient use of primary care services at referral centers. In rural areas with high disease morbidity and death rates, ineffective or mediocre cost-sharing initiatives and unethical behaviors in the healthcare industry make it difficult to use health services and spend money effectively [11].

Disparities in responsiveness related to health status determinants lead to horizontal inequities in access to the healthcare system if low responsiveness hinders further involvement with the healthcare system [12]. Persons with pre-existing conditions are now neglected even though they may need responsive health services the most.

Given the generally held idea that responsiveness scores increase with continued involvement and interaction with the health system, this conclusion is especially shocking [13].

Nevertheless, inequality grew in some regions of the world, which may have been caused by the fact that many low-to-middle-income nations had significantly slower progress in the fight against diseases. There are significant subnational differences in the quality and accessibility of personal healthcare across several nations [14]. There is a lack of alternative conceptualizations of responsiveness in health systems that go beyond the normative components of responsiveness. Further research is required to understand the particular reasons for the worse responsiveness rating for individuals in poor health and the development of system-based interventions to improve the quality of care for this patient group [15].

Materials and Methods

Study design and period

A hospital-based cross-sectional study was conducted from July 2023 to September 2023, at North Wollo public hospital, North East Ethiopia. North Wollo is found in Amhara region which is 542 Km away from Addis Ababa. The 2023 projected population of the Zone is 1,723,507. Out of this 862,361 are male and 861,145 are female. It is one of the 11 zones in the Amhara region. The zone covers an estimated area of 3,542.66 km^2 [16]. The zone has 6 hospitals (1 specialized, 1 general hospital and 4 primary hospitals), many health centers, private clinics and health posts. These Hospitals provide emergency, Anti-Retroviral Treatment (ART) services, chronic care, surgical, medical, pediatric, neonatal intensive care unit, gynecologic and obstetric, adult ICU, laboratory, ophthalmology, X-ray, voluntary consoling and testing and other health care services for more than 5000 clients daily and 10 million clients annually including other neighborhood regions such as Afar regional states.

Sample size determination and sampling techniques

A single population proportion formula was used to calculate a sample size, assuming a 95% confidence level, a 5% margin of error and by taking a cross-sectional study from primary healthcare facilities in Ethiopia with a prevalence of 66.2% [17].

$$n=(1.96)^2 \times 0.662(0.338)/(0.05)2=344$$

Assuming a 10% non-response rate and design effect 344+35=379 × 2=758

Multi-stage sampling technique was used to select study participants. By using simple random sampling, three hospitals were selected from the zone by lottery method. A proportional allocation of the sample for each hospital was employed. The computed sample size was determined using a systematic random sampling technique from all three hospital facilities. Then at every Kth interval (K=N/n), where N=total clients who have received healthcare services within the study period, n=required sample size. Thus N=17400, n=758 and

17400/758=22. Then every 22ⁿᵈ patient was taken into the study until the required number of study participants for each facility in the outpatient department was reached.

Variable measurement and definition of terms

Health system responsiveness was measured by seven domains based on the World Health Organization (WHO) responsiveness assessment framework. The health system responsiveness index was measured by 28 attributes that were organized into seven domains. The index was customized from WHO multi-country studies and the report of Ethiopia's health sector transformation plan [18-20]. Communication on clarity of explanation by health professionals for patients regarding their illness, details of treatments available alternatives were assessed by 4 items of questions having Likert scale ranging from 1 'never' to 4 'always' and lastly, those who scored above 10 points was considered as 'good' whereas including the cutoff point and below as 'poor' communication. Confidentiality about patient's privacy in the environment in which consultations were conducted was measured by 3 items of Likert having 1 'never' to 4 'always' and dichotomized as a score above 8 as "good" whereas including cut-off and below as "poor" confidentiality. Quality of basic amenities was computed by 5 items of questions (1 'very poor' to 5 'very good') regarding the physical environment and services including clean surroundings, enough space in waiting rooms and finally dichotomized as "good" above the cut-off 15 while score of 15 and below as "poor". Dignity was assessed by 4 Likert scale (1 'never' to 4 'always') questions about health care services, respectfulness and nondiscriminatory setting. Greater than 10 cut-off points were grouped as "good" and scores 10 and below as "poor". The choice was computed by 3 Likert scale (1 'never' to 4 'always') questions on the patient's possibility to choose between different providers or facilities and a score of 8 points was used as a cut-off point for grouping "good" for a score above 8 and "poor" for the score of 8 and below. Prompt attention was assessed by 5 Likert questions (1 'never' to 4 'always') about equality between different patient groups and in case of an emergency. Dichotomized as the cut-off above 13 is "good" whereas scores 13 and below are "poor". Autonomy was assessed by 4 Likert questions (1 'never' to 4 'always') about patient involvement in the decision-making process. Finally, it was categorized as "good" for a score above 10 and "Poor" for a score of 10 and below.

The eighth domain (access to social support network) was not assessed since it is used for assessing inpatients (hospitalization) only.

All the above Seven domains were added separately and grouped as "good" and "poor" by the demarcation threshold formula as: (Total highest score-total lowest score)/2) +total lowest score.

The outcome variable was computed by adding all 28 items and then it was dichotomized as "good" and "poor" by the demarcation threshold formula finally, those who scored 71 and above HSR were considered as "Good" and below were considered as "poor".

Perceived satisfaction of clients: Patient satisfaction was measured by using 5 questions on a five-point Likert scale with five response categories (1 'very dissatisfied' to 5 'very satisfied') and finally it was grouped by using the demarcation threshold formula. And those who scored 17 and above were considered as "satisfied" whereas below 17 were considered as "dissatisfied".

Perceived quality of care score: Assessed by 12 questions of the client's perception about the services they offered, the professionalism of the provider as well as, the patient values and interests in the services, in the service outlet. Then it was dichotomized into high for those who scored above 34 and low for those who scored 34 or less. Out-of-pocket payments and Membership in the health insurance scheme were assessed by Yes/No questions. PHQ-9: Was computed by 9 depression questions to assess whether the patient has depression or not, ranging from 1 'always' to 4 'not at all' after which it was dichotomized as "good" for scores above 22 and "poor" with a cutoff point of 22 and below.

Data collection tool and procedure

Socio-demographic and clinical data collection: Closed-ended interview questionnaires adapted from WHO health system responsiveness and questionnaires developed from reviewing different related literatures, which was used for data collection. The questionnaire was prepared in English first, then translated to Amharic (local language) and then translated back to the English language to check its consistency. The reliability of the tools was checked by Cronbach's alpha reliability test. The questionnaire mainly includes socio-demographic assessment, health facility-related responsiveness assessment questionnaires, perception of quality of care and health insurance membership. The data collector went and collected the data from participants' after they had received the services on their way to the home (exit interview). The data was collected daily.

Data quality assurance: Five B.Sc. Nurses for data collectors and three supervisors of the same field who were wrought out of the study area participated in the data collection process. Before the data collection, intensive training was given to all data collectors and supervisors by the principal investigator about the mechanism of data collection for three days. The training process focused mainly on the objective of the study, how to ask and fill out the questionnaires, the selection criteria of patients and how to approach the respondents without introducing biases. Additionally, the facility workers were not allowed to either see or hear the patients' responses. During the data collection, data collectors were assigned to the supervisor for better monitoring. Before starting the actual data collection, data collection was practiced in the field and the questionnaire was pretested on 5% of patients in the nearby district. The data collector and the principal investigator assessed the clarity and completeness of the questionnaires. Findings and experience from the pretest were utilized in modifying the data collection tool. If there was any problem

during the data collection process, the investigator discussed it with the supervisor and the solution was given on a daily base.

Data processing and analysis: The data was checked for accuracy before being entered into the Epi-data version 4.6 software package. The data was then cleaned, coded and analyzed using SPSS version 25 statistical software. Frequency, percentage, means and standard deviation were used to describe the descriptive data. The health system responsiveness dimensions will be compared using the *Chi-square*.

The association between the outcome variables and independent variables was analyzed using a logistic regression model. Initially, bivariate logistic regression analysis was performed on all independent variables. Multivariable logistic regression was then performed on variables that had a p-value ≤ 0.25 in the bivariate logistic regression analysis to assess the strength of the relationship between an outcome and several independent variables and to control for potential confounders.

The degree of association between independent and dependent variables was assessed using an adjusted odds ratio with a 95% confidence interval. The P-value<0.05 was considered to ascertain a statistically significant association in the multivariable model.

Results

Socio-demographic characteristics of the study participants

In this study, a total of 758 outpatients were interviewed. The median age of the study participants was 26 years. About 36.9% of participants were aged 30-39 years; about two-thirds were rural dwellers. The majority were Orthodox Christian followers in religion (Table 1).

Table 1. Respondents' socio-demographic characteristics (n=758).

Variables		Frequency	Percentage
Sex	Male	407	53.8
	Female	351	46.2
Age (Years)	15-29	252	33.2
	30-39	174	23
	40-49	118	15.6
	≥ 50	214	28.2
Place of residency	Rural	478	63.1
	Urban	280	36.9
Religion	Orthodox	683	90.1
	Muslim	67	8.8
	Protestant	5	0.7
	Other[1]	3	0.4
Occupation	Farmer	241	31.8
	Housewife	162	21.4
	Employee	201	26.5
	Merchant	109	14.3
	Other[2]	45	6
Marital status	Married	502	66.2
	Divorced	19	2.5
	Single	229	30.2
	Separated	8	1.1
Educational status	Unable to read and write	61	8
	Able to read and write	231	30.5
	Grade 1-4	102	13.5

	Grade 5-8	164	21.6
	Grade 9-12	118	15.6
	Diploma and above	82	10.8
HH monthly income in ETB	Less than 1000	44	5.8
	≥ 1000	323	42.6
	Unknown	391	51.6

Note: 1=catholic, pagan; 2=student, driver, daily labor.

Health facility accessibility-related characteristics of the study participants

More than half (58.1%) traveled more than one hour and above an hour to reach the health care facility. More than two-thirds of the study participants did not visit a traditional practitioner before visiting modern care as shown in Table 2.

Table 2. Health facility accessibility-related characteristics of the study participants (n=758).

Variables	Category	Frequency	Percentage
Health facility	Woldia hospital	326	43
	Kobo hospital	236	31.1
	Mersa hospital	196	25.9
Travel to the health facility on foot	Less than 1 hr	318	41.9
	≥ 1 hr	440	58.1
Out-of-pocket expenses for transport	Yes	646	85.2
	No	112	14.8
Visited traditional practitioner before visiting modern care	Yes	207	27.3
	No	551	72.7

Patient-related characteristics of the study participants

More than half (53.8%) of the respondents had good satisfaction. Regarding patient health quality (PHQ-9), more than three-fourths (86.7%) had good perceived patient health quality (Table 3).

Table 3. Patient-related characteristics of the study participants (n=756).

		Frequency	Percentage
Perceived satisfaction	Satisfied	408	53.8
	Dissatisfied	350	46.2
Perceived health care	High	552	72.8
	Low	206	27.2
Patient health quality	Good	657	86.7
	Poor	101	13.3

Performance of health system responsiveness

Four hundred Eighty-four (63.8%) at 95% CI (55.4-72.2) of the study participants in this study rated overall responsiveness performance as good. The performance of responsiveness varied greatly across the domains studied. Good responsiveness performance was high for the basic confidentiality domain (73.6%), dignity domain (69.7%) and communication domain (63.9%) (Table 4).

Table 4. Performance of health system responsiveness among study participants (n=758).

Domains	Good		Poor	
	Frequency	Percent	Frequency	Percent
Prompt attention	393	51.8	365	48.2
Dignity	528	69.7	230	30.3
Communication	484	63.9	274	36.1
Autonomy	398	52.5	360	47.5
Confidentiality	558	73.6	200	26.4
Choice	318	41.9	440	58.1
Amenities	365	48.1	393	51.9
All over	484	63.8	274	36.1

Factors associated with health system responsiveness

Binary logistic regression was employed to evaluate the association between different socio-demographic, health facility-related and patient-related variables with health system responsiveness. Variables with a p-value<0.25 in the bivariable analysis were considered candidates for multivariable analysis. The findings of this study showed that the odds of HSR among participants who showed a satisfied response were 2.11 times higher than its counterpart. The findings of this study also showed that the odds of HSR among participants with no out-of-pocket payment for transport to reach the health facility was 1.17 times higher than its counterpart (Table 5).

Table 5. Multivariable analysis of factors associated with HSR in North Wollo public hospitals Noxrtheast, Ethiopia, 2023(n=758).

Variables	Health system responsiveness		COR (95% CI)	AOR (95% CI)
	Unacceptable	Acceptable		
Age in years				
15-29	92	160	1	1
30-44	82	92	0.64 (0.33-0.96)	0.92 (0.47-1.80)
40-49	51	67	0.75 (0.43-1.55)	0.98 (0.45-2.0)
50 and above	70	144	1.18 (0.61-1.77)	0.32 (0.82-3.29)
Occupational status				
Farmer	98	143	1	1
Housewife	72	90	0.85 (0.58-1.66)	0.98 (0.51-1.87)
Employed	71	130	1.25 (0.96-2.76)	1.03 (0.46-2.32)
Merchant	52	57	0.75 (0.35-1.36)	0.77 (0.33-1.79)
Other[1]	23	22	0.66 (0.23-1.19)	0.27 (0.14-1.03)
Out-of-pocket expenses for transport				
Yes	171	205	1	1
No	141	241	1.43 (1.31-2.98)	1.17 (1.03-2.92)**
Patient health quality				
Good	198	326	1.51(0.96-2.84)	0.66 (0.39-1.62)
Poor	112	122	1	1
Patient satisfaction				
Dissatisfied	147	102	1	1
Satisfied	166	343	2.97 (6.42-21.02)	2.11 (1.08-9.46)**

Discussion

This study was carried out to determine the level of health system responsiveness and to identify factors associated with health system responsiveness among outpatients in the North Wollo public hospitals, North East, Ethiopia. The study highlighted that the health system was responsive for nearly two-thirds (63.8%) of healthcare users with a 95% CI (55.4-72.2). This finding is consistent with a study conducted in Wolaita zone, Ethiopia, in which the performance of health system responsiveness was 68.3% and Asagirt District, North Shewa Zone, Ethiopia. However, this result was higher than a study conducted in Ghana which had a good response of 51.7% and in Shewarobit, Ethiopia, in which 55.3% of the health system responsiveness was good performance. The higher responsiveness could probably be the difference in the study participants; in this study, we investigated HSR among all outpatients from each healthcare facility in the district; however, in Shewarobit, the study was conducted on case-specific responsiveness among HIV-positive individuals. Additionally, the observed better responsiveness performance may result from the government's on-going efforts to improve service delivery.

On the contrary, the finding was lower than a study conducted in Iran that showed more than 78% of individuals rated all aspects of responsiveness as essential or important and a study from Nigeria showed that the overall response rate was 79.6%. This is possibly due to the differences in health care availability and accessibility where there is better availability and continuity of primary health care. This is probably also the difference in socio-demographic characteristics of the study participants.

This study revealed that the health system responsiveness has differed across domains. Accordingly, of the seven domains that were measured, confidentiality (privacy) (73.6%) and dignity (respect) (69.7%) performed better than other domains. This is in line with studies conducted in Ethiopia and another study from Tanzania, confidentiality and dignity were the highest scores in the domains of responsiveness. The higher score for the two domains might be users' high expectation of privacy and safeguarding of personal information by a health professional.

Despite the highest responsiveness performance scores in confidentiality, dignity and communication domains, our results revealed a concern by patients regarding the domains of prompt attention and basic amenities. These findings are similar to previous studies conducted on healthcare responsiveness in Nigeria and Tanzania in which prompt attention and quality of basic amenities were poorly performed. Therefore, demand and supply investments and increasing the physical structure of the units proportional to the district population are needed.

This study revealed that patients' satisfaction and out-of-pocket payment for transport to reach the health facility were identified as factors affecting the performance of health system responsiveness. The findings of this study showed that the odds of HSR among participants who showed a satisfied esponse were

2.11 times higher than its counterpart. The findings of this study also showed that the odds of HSR among participants with no out-of-pocket payment for transport to reach the health facility was 1.17 times higher than its counterpart. This could probably be because the rating of HSR might be influenced by the expectations against the relative total worth of expense in obtaining needed health care. As financial fairness improved, customers rated health facilities more responsive.

Conclusion

This study revealed that the health system responsiveness has differed across domains. Accordingly, of the seven domains which were measured, confidentiality (privacy) and dignity (respect) had performed better than other domains.

Recommendation

The hospital management bodies together with the concerned bodies should work on the improvement of health system responsiveness and an assessment of health system responsiveness with the involvement of providers' perception should be conducted. Aside from that, enhancing patient satisfaction and using input from service users, will be important interventions to improve HSR performance.

Ethical Approval and Informed Consent

The study protocol was reviewed and approved by the research and ethics review committee of Adago post graduate college, Adago. Written permission letters were also obtained from Woldia comprehensive specialized hospital, Kobo and Mersa general hospitals. The purpose and procedures of the study were explained to the study participants, parents or guardians and written informed consent was obtained. The confidentiality of all study participants was maintained.

Consent for Publication

Not applicable.

Data Availability

The finding of this study is generated from the data collected and analyzed based on the stated methods and materials. All the data are already found in the manuscript and there are no supplementary files. The original data supporting this finding will be available at any time upon request.

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Competing Interests

The authors declare that they have no competing interests.

Authors Contributions

TA: Conceptualized the study, collected the data, analyzed the data and critically edited the manuscript, AY: Designed and supervised the entire study, critically revised and contributed to the scientific content of the manuscript, AS: Involved in the analysis and interpretation of the data, substantially revised and critically edited the manuscript and contributed to the scientific content of the manuscript.

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