

## Self-Referral and Associated Factors Among Patients Attending Adult Outpatient Departments

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### Abstract

**Background:** Self-referral leads to diminished quality of health care service; increase resource depletion and poorer patient outcomes. However, a significant number of patients referred themselves to the higher healthcare facilities without having referral sheets. Even though the problem is much exacerbated, there is limited evidence regarding self-referral patients in particular in the study area. **The aim of study:** To assess the magnitude and associated factors of self-referral among patients at the adult outpatient department in general hospital, KSA. **Method:** A cross-sectional study was conducted from February to April 2023 among 693 patients who attended adult outpatient departments. A systematic sampling technique was employed. Structured and pretested interviewer-administered questionnaire was used for data collection. Data were coded, cleaned and entered into and exported to SPSS version 28 for further analysis. Binary logistic regression analysis was employed. In bi-variable analysis *p*-value, less than 0.25 was used to select candidate variables for multivariable analysis. *P*-values less than 0.05 and 95% confidence intervals were used to select significant variables on the outcome of interest. **Result:** The proportion of self-referral was 443(63.9%) with 95% CI (60.5; 67.5). Formally educated, (AOR = 1.83; (95% CI: 1.12, 3.01)), enrolled to Community Based Health Insurance (AOR = 1.57; (95% CI: 1.03, 2.39)), poor knowledge about referral system (AOR = 2.07; 95% CI: (1.28, 3.39)), not and partially available medication in the nearby Primary Health Care facilities (AOR = 2.12; (95% CI: 1.82, 6.15)) & (AOR = 3.24; (95% CI: 1.75, 5.97)) respectively and history of visiting general hospital (AOR = 1.52; (95%CI: 1.03, 2.25)) were factors statistically associated with self-referral. **Conclusion and recommendation:** The proportion of self-referral was low. Socio-demographic and institutional factors were associated with self-referral. Therefore, healthcare system better to work to fulfill the availability of medications in the primary health care facilities. In addition, Community Based Health Insurance (CBHI) agency should work to implement the law of out-of-pocket expenditure which states to pay 50% for self-referred patients who claim utilization of healthcare.

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**Keywords:** *Self-referral, Referral system and Outpatient.*

## Introduction

A referral system entails the interrelationship and coordination of patient care services from one health care facility to another. A referral is a process by which a healthcare worker transfers the responsibility of care temporarily or permanently to another health professional in response to their inability or limitation to provide the necessary care <sup>(1)</sup>. While, self-referral is a situation when patient refers himself to higher-level healthcare facilities other than the primary care facilities without having referral sheet <sup>(2)</sup>. An effective referral linkage is an integral component of a successful healthcare system for quality health service. Many developing countries have policies regarding to the referral system while transforming referral policies into practice between primary health care (PHC) facilities and higher-level facilities is challenging. To strengthen referral system all levels of the healthcare delivery system need to be functioning appropriately. In developing countries, higher-level health care facilities were overcrowded with patients who could be treated in lower level facilities which are a common feature of a poorly functioning referral system <sup>(3-6)</sup>.

Self-referral causes depletion of resources such as patients waiting long hours and wasting of highly trained medical workers' time for minor cases. As a result, patients frequently referred to another hospital and die on the way. Moreover, due to the large patient load, human and physical resources are stretched to capacity, which results in hospitals compromising the care that they provide to patients <sup>(7)</sup>. The KSA government has made remarkable progress to improve access to PHC units for all. According to the World health organization report, 1.6 billion dollars was financed for health care, of the total health expenditures, 14.69% goes to finance PHC. However, many patients attend a higher level of care for their initial visit that can be managed at a lower level without having a referral sheet <sup>(8-10)</sup>. As result, secondary level hospitals were congested and overburdened <sup>(2)</sup>.

Studies conducted in Africa showed that the magnitude of self-referral was 27.7, 30.8 33.9, 60, 87 and 96.1% in Nairobi Kenya, Mozambique, Ghana, Nigeria, Sudan and Kirinyaga district Kenya respectively <sup>(11-16)</sup>. In addition, the studies done in South Africa showed that the magnitude of self-referral was 35, 36, 86.9 and 88.2% in Kwazulu Natal, EThekwni District, Tubatse local Municipality and Western Cape Province of respectively <sup>(17-20)</sup>. Furthermore, studies done in Ethiopia the magnitude of self-referral in general and referral hospitals were 82 and 84.4% respectively <sup>(2, 21)</sup>. Additionally study conducted in Hosanna town, Hadiya Zone shows that 67% mothers bypassed their catchment public health centers <sup>(22)</sup>.

Studies conducted in Sub Saharan Africa showed that respondents whose age is 40 years and below, sex of the respondents, income, educational level, distance, waiting time, availability of diagnostic test and medication, knowledge about the referral system and access to transportation were the factors that influence patient self- referral <sup>(11, 14, 15)</sup>. Another, studies conducted in Ethiopia showed that access to transportation, availability of laboratory service, availability of prescribed drugs and obtaining information about the referral system from health care worker at the nearby PHC facilities affected patient self-referral However, the relationship between self-referral and community based health insurance (CBHI) were not assessed <sup>(2,6, 21, 23)</sup>.

There are limited findings with regards to self-referral in KSA. Therefore, the aim of this study was to assess the magnitude and factors associated with self-referral among patients at adult out- patient departments in General Hospital, KSA.

## Methods

The study was conducted in outpatient department in general hospital, KSA from

February to April 2023. A cross-sectional study was conducted. All patients who attended the adult outpatient whose age 15 and above during the study period were included while those patients who are critically ill/ unable to respond were excluded. The sample size was determined by using both single population proportion formula and factor analysis while we found better sample size on objective one; based on the following assumptions, with Proportion of self-referral patients =82%<sup>(2)</sup>, margin of error (5%), 95% CI. After adding 10% nonresponse rate, the final sample size was 693. To recruit each participant's systematic sampling technique was employed by considering an average monthly patient flow of the hospital 6302 patients per month. The first participant was identified by lottery methods. Finally, every patient with 9th interval was included in the study until the final sample sizes were obtained.

### **Study variables**

**Dependent variable:** Self-referral (Yes/No).

**Independent variables:** Socio-demographic factors (Sex of the respondent, age of the respondent, wealth index, educational status, occupation, marital status and residence), Individual factors (Knowledge about the referral system, perceived severity of illness and perceived treatment at the general hospital is better) and Institutional factors (Distance, waiting time at PHC facilities, availability of diagnostic and medication at the nearby PHC facilities, access to transportation and obtaining information about referral system from health care workers).

### **Operational definitions**

Self-referral is a situation when patients refer themselves to higher-level health care facilities (General Hospital) first before they visit primary health care facilities.

Knowledge about the referral system eight questions were used to measure the knowledge of patients with regard to the referral system. If the patients answer more than 75% of the knowledge question he/she was considered as having good knowledge, if the patients answer 45 to 75% he/she was considered as having fair knowledge and if they answer less than 45% they were considered as having poor knowledge<sup>(24)</sup>.

Wealth index: the socioeconomic status of each household was constructed using principal component analysis (PCA) of household assets followed by stratification of the households into wealth quintiles. The analysis was done by aggregating the ownership of durable assets; access to utilities and infrastructure; and housing characteristics; ownership of land and ownership of livestock variables into a single proxy variable of household wealth. All asset variables were coded into binary variables. Asset variables with zero standard deviations were excluded from the PCA as they did not contribute to the analysis. The first component of the PCA was used to construct the wealth quintiles. Based on the PCA weights for each asset variable, an aggregated score was calculated for each of the surveyed households, which was grouped into quintiles with quintile 1 (Q1) representing the poor 33% of households in the sample and quintile 3 (Q3) representing 33% of the better-off (rich). The study subjects were thereafter grouped into quintiles based on their household wealth<sup>(25-27)</sup>.

### **Data collection tools and procedures**

Structured and pretested interviewer-administered questionnaires were developed by reviewing different literatures<sup>(12, 14, 15, 21, 27, and 28)</sup>. First, the questionnaires were prepared in English then translated into Arabic and translated back to English to check the consistency. The questionnaire consists of socio-demographic, individual and institutional factors. Data were collected via interview before obtaining service in the out-patient waiting area. A pilot test was conducted among 70(10%) patients at General

Hospital before the study period to check the consistency of the questionnaire. Before any data were gathered, all study participants provided their verbal agreement. Subjects were made aware of the study's objective before researchers began to collect data. Information about the participants was kept private and anonymous. The assurance that their involvement in the study was optional was offered to every participant. They were made aware that they could discontinue the study at any moment and without explanation.

### Data analysis and management

Data were coded, entered and cleaned into and exported to SPSS version 28 for further analysis. Descriptive statistics (frequency, percentage, SD and mean) were employed to summarize the variables. Binary logistic regression analysis was employed to see the relationship between dependent and independent variables. Bi-variable analysis was used to select the candidate variable for multivariable analysis at p value less than 0.25. Variance inflation factors (VIF) were used to check Multi-collinearity. P-values and confidence intervals were used to select significance variables on multivariable analysis and those variables whose p-value less than 0.05 were considered as statistically significant.

### Results

**Table (1)** shows socio-demographic characteristics of the respondents were 42.4% in the age groups of 35 and above years with the mean age and standard deviation of  $34.3 \pm 11.9$  years. The majority of respondents (52.4%) were living in urban. 38.8% of respondents were not attended formal education while 14.1% of respondents attained degree and above. 33.5% of respondents were from the rich family wealth index. While, 38.5% of respondents have good knowledge about referral system, 51.9% of respondents were not enrolled in CBHI.

**Table (2)** shows that Five hundred two (72.4%) respondents replayed that the health center is the closest health facility to their place of residence. Four hundred fifty two (70.8%) respondents received information about the referral system from health care providers. Four hundred sixty seven (67.4%) respondents have access to transportation. Four hundred thirteen (59.5%) of the respondents have used a car as a means of transportation.

**Table (3)** shows the magnitude of self-referral was 443 (63.9%) with 95% CI (60.5; 67.5). The main reasons for self-referral were expected to get better treatment at the general hospital 63.1%, not expected to get laboratory investigation 58.7 and 49.9% not expected to get medication at the nearby PHC facilities. Factors associated with patients' self-referral, in bi-variable analysis educational status, place of residence, wealth index, history of visiting the general hospital, enrollment to CBHI, knowledge about referral system, distance to the health facilities, accessibility of transport, availability of medication at the nearby PHC facilities, waiting times at PHC facilities were found be candidate variable for multivariable analysis at p-value less than 0.25.

Additionally, table (3) shows on multivariable analysis educational status, history of visiting general hospital, Enrollment to CBHI, knowledge about referral system and availability of medication at nearby PHC facilities were statistically significant at p-value less than 0.05. The odds of self-referral among patients who attend formal education was 1.83 times (AOR 1.83; (95% CI; 1.12, 3.01)) higher compared to those who did not have formally educated. The odds of self-referral among patients who were enrolled in CBHI was 1.57 times (AOR 1.57; (95% CI; 1.03, 2.39)) higher as compared to those who were not enrolled to CBHI. The odds of self-referral among patients who have poor knowledge about the referral system was 2.07 times (AOR 2.07; 95% CI (1.28, 3.39)) higher compared to those patients who have good knowledge.

Moreover, the odds of self-referral among patients who replied that medication is not available at all and some medication is available at the nearby primary health care facilities were 2.12 (AOR 2.12; (95% CI; 1.82, 6.15)) and 3.24 (AOR 3.24: (95% CI; 1.75, 5.97) times greater compared to those who have got all the medication at nearby PHC facilities respectively. The odds of self-referral among patients who had a history of visiting General hospital was 1.52 times (AOR, 1.52; (95% CI; 1.03, 2.25) higher compared to those who did not visit (Table 3).

**Table (1):** Socio-demographic characteristics of the participants (n = 693)

Variables	Frequency (%)
<b>Age</b>	
15 to 24	156 (22.5%)
25 to 34	243 (35.1%)
35 & above	294 (42.4%)
<b>Gender</b>	
Female	350 (50.5%)
Male	343 (49.5%)
<b>Marital status</b>	
Single	206 (29.7%)
Married	426 (61.5%)
Widowed	38 (5.5%)
Divorced	23 (3.3%)
<b>Educational status</b>	
No formal education	269 (38.8%)
Primary	90 (13.0%)
Secondary	115 (16.6%)
College diploma	121 (17.5%)
Degree & above	98 (14.1%)
<b>Occupation</b>	
Governmental employee	99 (14.3%)
Merchant	124 (17.9%)
Farmer	223 (32.2%)
Student	120 (17.3%)
Others *	127 (18.3%)
<b>Wealth Index</b>	
Poor	232(33.5%)
Middle	229(33.0%)
Rich	232(33.5%)
<b>Knowledge</b>	
Poor	202(29.2%)
Fair	224(32.3%)
Good	267(38.5%)
<b>Enrollment to CBHI</b>	
Yes	333(48.1%)
No	360(51.9%)

\*Others = Daily laborers, NGO, Brokers, Drivers, Unemployed, house wife, and

Tailor

**Table (2):** Institutional related characteristics of the respondents (n = 693)

Variables	Frequency (%)
<b>Nearby health facility closest to home</b>	
Health center	502 (72.4%)
Primary hospital	155 (22.4%)
General hospital	36 (5.2%)
<b>Visit nearby health facility for current health problem</b>	
Yes	551 (79.5%)
No	142 (20.5%)
<b>Availability of medication at PHC (n = 551)</b>	
All available	78 (14.2%)
Some available	264 (47.9%)
None available	209 (37.9%)
<b>Availability of laboratory at PHC (n = 551)</b>	
All available	65 (11.8%)
Some available	178 (32.3)
None available	308 (55.9)
<b>Waiting time at PHC (n = 551)</b>	
Too short	326(59.2%)
Too Long	225(40.8%)
<b>Distance from the hospital</b>	
Less than one hour	253(36.5%)
One to two hour	67(9.7%)
More than two hour	373(53.8%)
<b>Access to transportation</b>	
Yes	467 (67.4%)
No	226 (32.6%)
<b>Mode of transportation</b>	
Car	413 (59.5%)
Animal	105 (15.2%)
On foot	175 (25.3%)

**Table (3):** Factor associated with self-referral among patients who attend to outpatient departments

Variable	Self-referral		COR (95% CI)	AOR (95% CI)
	Yes	No		
<b>Educational status</b>				
No formally educated	131	138	1	1
Formally educated	312	112	2.94(2.13,4.05)	1.83(1.12, 3.01)*
<b>Residence</b>				
Urban	273	90	2.86(2.07, 3.94)	1.19(0.62, 2.31)
Rural	170	160	1	1
<b>Enrollment to CBHI</b>				
Yes	275	85	3.18(2.29,4.39)	1.57(1.03,2.39)*
No	168	165	1	1

Variable	Self-referral		COR (95% CI)	AOR (95% CI)
<b>Knowledge about referral system</b>				
Poor	152	50	2.41(1.62, 3.59)	2.07(1.28, 3.39)*
Fair	142	82	1.37(0.95, 1.97)	1.24(0.93, 2.24)
Good	149	118	1	1
<b>Wealth Index</b>				
Poor	116	116	1	1
Middle	153	76	2.01(1.38, 2.93)	0.81(0.39, 1.66)
Rich	174	58	3.00(2.03, 4.45)	1.18(0.69, 2.02)
<b>Distance</b>				
< One hour	215	158	1	1
1 to 2 h	44	23	1.41(0.82, 2.42)	1.09(0.67, 1.76)
2 and more hour	184	69	1.96(1.39, 2.77)	1.43(0.73, 2.84)
<b>Availability of medication (n = 551)</b>				
All available	28	50	1	1
Some available	174	90	3.45(2.04, 5.85)	3.24(1.75, 5.97)*
None available	123	86	2.55(1.49, 4.38)	2.12(1.82, 6.15)*
<b>Visiting General hospital previously</b>				
Yes	251	110	1.66(1.22, 2.27)	1.52(1.03, 2.25)*
No	192	140	1	1

## Discussion

The magnitude of self-referral in the study area was 63.9% with 95% CI (60.5; 67.5). This finding was consistent with a study conducted by Elisso, (2016) <sup>(22)</sup> revealed that 67% of the patients were self-referral. However, the proportion of self-referral in the present study was lower compared with studies conducted by Geta et al., (2019) <sup>(21)</sup> reported that self-referral 84% and Abdi et al., (2015) <sup>(2)</sup> reported that self-referral 82%. This difference might be attributed to the interventions that focus to improve the accessibility and quality of PHC facilities. Moreover, the finding of this study was higher than a study conducted by Rajman and Mahomed, (2019) <sup>(18)</sup> revealed that 35% of patients in the outpatient department were self-referred. This may be due to different family health service specialists assigned at PHC service to provide comprehensive specialty care to the community <sup>(29)</sup> while specialty care is only delivered at higher health care facilities which are beyond the PHC level. The KSA government may take this lesson and should diversify healthcare services provided at the primary healthcare level in order to avoid unnecessary referrals.

The finding of this study presented that patients who attend formal education were more likely to be self-referred to general hospitals compared to those who did not attend formal education. The finding of this study was consistent with study conducted in India <sup>(28)</sup>. This might be due to educated patients were perceived their illness to be unpredictable with worse outcomes because of this they need more specialized care <sup>(30)</sup>. In addition, education is one of the means to increase ones household income and they are more capable to spend money on the medical expenses <sup>(31)</sup>. And when people are educated they would know that better healthcare can be received in higher level health facilities. This study identified patients who enrolled in CBHI were more likely to be self-referred compared to their counterparts. There is limited finding with the

relationship between CBHI and self-referral. The reason for this might be patients who enrolled in CBHI cover low out-of-pocket payments for medical expenses hence they prefer high level and specialized health care service<sup>(32)</sup>. Thus, facilities should prohibit services for peoples with self-referrals who treated free of charges due CBHI claim right, Similarly CBHI agency should devise mechanisms of halting such unnecessary referrals.

The findings of this study exposed that patients who have poor knowledge about the referral system were more likely to be self-referred compared to those patients who have good knowledge about the referral system. This finding was consistent with studies conducted in Nigeria<sup>(14)</sup> and Iran<sup>(33)</sup>. This might be due to knowledge is one of means to increases the understandings of the patients about the general service provision of the facilities and the chains of lower to higher health care facilities. Moreover, they are more likely to understand the existing referral system<sup>(34)</sup>. Patients who visit General hospital previously were more likely to be self-referred themselves compared to those who did not visit the service previously. This finding was consistent with a study conducted in Ghana<sup>(13)</sup>. The possible reason for this is they are more familiar with the provision of the services at the general hospital.

This study identified availability of medication at PHC facilities was associated with patient's self-referral. The finding of this study was in line with studies conducted in Ethiopia<sup>(2, 21)</sup> and South Africa<sup>(20)</sup>. This might be due to patients were more prefer to use facilities with available resources. Availability of health care resources in the facilities more attracts the health care service users<sup>(35)</sup>. This implies that fulfilling the availability of medications at the lower health care facilities was reducing patient's self-referral.

### Conclusion

This study shows that the proportion of self-referral was lower comparing to others studies which stated that all individuals passed through primary health care services. Educational status, knowledge about referral system, availability of medication in the nearby PHC facilities, enrollment in CBHI and history of visiting general hospital were factors significantly associated with self-referral. Community-Based Health Insurance (CBHI) agency should work to implement the law of out-of-pocket expenditure which states to pay 50% for self-referred patients who claim utilization of healthcare.

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