

Unmet Healthcare Needs of Elderly in Iran: A Case Study

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Abstract

Background: The aim of this study is to investigate the status of perceiving need, seeking behavior and utilization of health services in the elderly population of Sanandaj (west of Iran).

Methods: This is a cross-sectional study conducted on 800 elderly people in Sanandaj. Subjects were selected using multistage sampling and data were collected using self-report questionnaires. A multivariate logistic model with odds ratios (ORs) was used to determine the relationship of independent variables with seeking perceived need. Also, Concentration Index was used to measure the inequality in using health services.

Results: The perceived need for outpatient (during the last 30 days) and inpatient healthcare (during the last 12 months) were 69.7% and 29.7%, respectively. Among them unmet need for outpatients and inpatients healthcare was 46.6% and 17%, respectively. Having health insurance (adjusted OR 12.08; 95% confidence interval [CI] 1.04-140.11), middle economic status (adjusted OR 5.18; 95% CI 1.30-20.51), and age group between 65-70 years (adjusted OR 7.60; CI 1.42-40.61) increased the chances of seeking inpatient care and age group between 60-65 (adjusted OR 0.41; 95% CI 0.18-0.95) reduced the chances of seeking outpatient care. There was also inequality in using outpatient health services, concentrated in the Rich population.

Conclusion: The elderly population suffers from unmet healthcare needs, especially in outpatient services. The most important reason for not seeking outpatient services was financial barriers and for inpatient services was self-medication. So, designing targeted policies and interventions to address barriers in conversion of need to demand in the elderly population is essential.

Background

The opportunity to use the health services is defined as Access and the use of health services as Utilization. Utilization of health services is influenced by the perceiving-need factor and seeking-behavior one [1]. Unmet healthcare need is one of the most important indicators of access to health services[2]. This indicator reflects the barriers to seek and receive health services[3]. According to Anderson's behavioral model, the use of health services is influenced by three categories of factors: "predisposing factors" such as gender, age, education, and health beliefs; "enabling or impeding factors" such as financial status, insurance status, quality of healthcare and distance to health care provider; and "need factors" such as the severity of illness and disability[4].

Between 2015 and 2050, the world's elderly population will almost double, from 12 percent (900 million) to 22 percent (2 billion), according to the World Health Organization (WHO) report. Although population ageing has begun in high-income countries, low- and middle-income countries are currently experiencing the highest rate of demographic change[5]. In Iran, the elderly population is also growing quickly and faster than the global average. Between 1986 and 2016, the percentage of the elderly population in this country increased from 5.4–9.3%[6]. The percentage of the elderly population in Iran in 2030 and 2050 is

expected to reach 14.8% and 29.45%, respectively[7]. Increasing life expectancy and the population of the elderly is an achievement, but if the health systems are not properly prepared and planned to meet the health needs of this group of the population, they will face serious challenges[5]. Failure to seek and receive the essential health services can threaten the health of the elderly and have irreparable consequences for them. Failure to address the health needs of the elderly today, could become a costly problem in the future[8]

Identifying barriers to the conversion of health services need into demand, to design targeted interventions and policies, is essential. The historical approach to health care is inconsistent with the current and future needs of society in which health systems in developing countries, including Iran, have been designed focusing on children, pregnant mothers, and infectious disease over the past decades. As a result, little attention has been paid to the elderly due to the economic conditions of the previous years[9]. The current elderly care system in Iran does not meet the current and future needs of the elderly and faces several challenges, including lack of skilled manpower, lack of care centers and equipment for the elderly, limited financial resources, lack of friendly spaces for the elderly, inefficiency of the insurance system and lack of the appropriate referral system[10]. The WHO emphasizes the reform and revision of health systems based on valid studies and evidence to meet the current and future needs of the elderly[5, 11]. It is more important than ever to conduct studies that fully understand the elderly, including; the perceiving of the need, seeking-behavior factor and the utilization of their health services and to be able to be the basis for the right decisions and policies compared to any other time. In this regard, the aim of this study is to investigate the status of perceiving the need, search-behavior factor and the utilization of health services in the elderly population of Sanandaj (West of Iran).

Methods

This is a cross-sectional study which is the analytical descriptive type conducted on the elderly of Sanandaj in 2018. Sanandaj is the capital of Kurdistan province in western Iran. According to the latest national census in 2016, the total population of the city is estimated at 865000 about 82000 of which are elderlies. We determined the sample size using the following formula and considering $p = 50$ (utilization of the health services), 5% accuracy and 95% significance level equal to 400 people, which was multiplied by 2 due to the use of stratified sampling. The final sample size was 800 people.

$$n = \frac{Z^2_{1-\frac{\alpha}{2}} * p (1 - P)}{d^2} = 553 * 1.45 = 800$$

We selected the elderly via Stratified two-stage cluster sampling. First, we randomly selected 20 clusters (10 urban centers and 10 rural bases) from the comprehensive center of urban health and rural bases of Sanandaj, and from the population of the elderly covered by each center and base, 40 elderly people were randomly selected. We completed the questionnaire by making an appointment and visiting the household. We should note that written consent to participate in the study and having the appropriate

mental strength of the elderly were the conditions for entering the study. We collected the required information through the Utilization Health Services questionnaire, which is a valid and reliable questionnaire designed by the National Institute of Health Research of Iran[12]. The questionnaire comprises three sections. The first section was demographic and contextual information, which included age, gender, occupation, education, employment status, basic insurance type, supplementary insurance status, and place of residence. The second part included the economic situation of the individual's family. The economic status of the individual's family was investigated through the home assets index (percent of the households that own house, computers, washing machines, dishwashers, vacuum cleaners, refrigerators, freezers, fridge freezers, car and internet access) and using the principal composition analysis method.

Based on Asset index, the study population was divided into 5 very poor, poor, moderate, rich and very rich quintiles (1 = poorest, 5 = richest). The third section was related to the questions of need, seeking and utilization of health services:

Have you felt the need for outpatient health care (over the past 30 days) and hospitalization (over the past 12 months)? Yes / No

Did you go to the health center to receive these services? Yes / No

Could you receive these services after referring to the health center? Yes / No

What were the reasons for not referring or not receiving services after referring to the health center?

Measurement of socioeconomic inequality in outpatient and inpatient services

The Wagstaff concentration index and concentration curve was used to measure the socioeconomic-related inequalities in outpatient and inpatient care[13]. In each of them, we examined the need, seeking and use of outpatient as well as the need, seeking and use of inpatient care. The Wagstaff concentration index takes value between - 1 and + 1; if its value is negative (positive), the outcome variable is more concentrated among the poor (rich). The concentration index plots the cumulative percentages of population ordered by socioeconomic status in x-axis against the cumulative percentage of outcome variable in y-axis. If the concentration curve lies under perfect equality line; the outcome variable is more prevalent among socioeconomically advantaged individuals and *vice versa*[14].

The Chi-Square Test and the Fisher's exact test were used to examine the relationship between independent variables including demographic variables and dependent variables, including the perceiving of the need and seeking the perceived needs of outpatient and inpatient services. Also, to determine the relationship between independent variables and the consequence variable (perceiving of the need, seeking inpatient and outpatient care) was calculated using multivariate logistic model regression,

Adjusted Odds Ratio (OR) and confidence interval (CI). Statistical tests were performed using STATA software package

Results

Seven hundred and ninety-two elderly people took part in the study. 50% of the respondents were rural and 50.1% of them were men. While most respondents (90.4%) had basic health insurance, only 9.7% were covered by supplementary health insurance. Other demographic and economic variables are given in Table 1.

Table 1
descriptive characteristics of the study population (N=792)

Variable	Number	Percentage
Gender		
Male	397	50.1
Female	395	49.9
Education status		
Illiterate and primary school	510	64.4
Middle school and high school	175	22.1
University	107	13.5
Marital status		
Single	90	11.4
Married	522	65.9
Divorced/ Widow	180	22.7
Age group		
60-65	309	39.0
65-70	277	35.0
>70	206	26.0
Household size		
1 and 2	95	12.0
3	233	29.4
4	361	45.6
≥5	103	13.0
Place of residence		
Urban	396	50.0
Rural	396	50.0
Occupation type		
Employed	181	22.9
Retired	158	19.9
Housewife	297	37.5

Unemployed	156	19.7
Health insurance status		
Yes	765	90.4
No	27	9.6
Supplementary health insurance status		
Yes	77	9.7
No	716	90.3
Economic status		
Poorest	154	19.4
Poor	162	20.5
Middle	182	23.0
Rich	159	20.1
Richest	135	17.0

In total, 69.7% (n = 240) of participants in the last month (the last 30 days) perceived the need for outpatient care. Among people who felt the need for outpatient care, 67.1% (n = 161) had sought for the service, and 79.5% eventually had received the service. The main reasons for not seeking outpatient care were "I could not afford the costs" (40.2%) and "insurance did not cover the costs" (40.3%), respectively. Also, 29.7% (235 = n) of the elderly in the last year (last 12 months) had perceived the need for inpatient care, of which 85.1% (n = 200) had sought for these services and in the end, 97.5% of these people had received services (Table 2).

Table 2
Perceived need, seeking and receiving outpatient and inpatient care in the study
population in Kurdistan province in 2019

Variable	Number	Percentage
Perceived need for outpatient care(N=792)		
Yes	240	30.3
No	552	69.7
Perceived need for outpatient care by service type (N=240)		
Physician visit	240	100.0
Dentistry	163	67.9
Rehabilitation	40	16.6
Midwifery	20	8.3
Psychiatry and Psychology	44	18.3
Paraclinical	119	49.5
Seeking for outpatient care (N=240)		
Yes	161	67.1
No	79	32.9
Receiving outpatient care after seeking (N=161)		
Yes	128	79.5
No	33	20.5
Reasons for not seeking outpatient care(N=79)		
Outpatient care office is too far	17	22.1
Insurance did not cover the costs	31	40.2
I had some drugs at home and take them	21	27.3
The service do not have good quality	14	18.2
Did not have time	20	26.0
I may go in the future	9	11.7
Could not afford the cost	31	40.3
Perceived need for inpatient care(N=792)		
Yes	235	29.7
No	557	70.3

Seeking for inpatient care (N=235)		
Yes	200	85.1
No	35	14.9
Receiving inpatient care after seeking (N=200)		
Yes	195	97.5
No	5	2.5
Reasons for not seeking inpatient care(N=35)		
Hospital is too far	9	25.7
I had some drugs at home and take them	16	45.7
Did not have time	7	20.0
I may go in the future	9	25.7

Based on Table 3, the results of the Chi-square test showed that age group ($P = 0.001$), and economic status of the individual household ($P = 0.046$) had a significant relationship with inpatient care search. Also, age group ($P = 0.031$) has a significant relationship with outpatient care seeking.

Table 3

Results of chi-square between seeking perceived inpatient and outpatient care with explanatory variables

Explanatory variables	Seeking perceived inpatient care need			Seeking perceived outpatient care need		
	Yes	No	P-value**	Yes	No	P-value
Gender						
Male	100 (86.2)	16 (13.8)	0.640	82 (68.3)	38 (31.7)	0.680
Female	100 (84.0)	19 (16.0)		79 (65.8)	41 (34.2)	
Education status						
Illiterate and primary school	116 (82.9)	24 (17.1)		99 (69.2)	44 (30.8)	
Middle school and high school	50 (86.2)	8 (13.8)	0.376	39 (67.2)	19 (32.8)	0.482
University	34 (91.9)	3 (8.1)		23 (59.0)	16 (41.0)	
Marital status						
Single	21 (80.8)	5 (19.2)		17 (65.4)	9 (34.6)	
Married	133 (85.8)	22 (14.2)	0.800	106 (66.7)	53 (33.3)	0.929
Divorced/ Widow	46 (85.2)	8 (14.8)		38 (69.1)	17 (30.9)	
Age group						
≤65	79 (77.5)	23 (22.5)		69 (64.5)	38 (35.5)	
65-70	70 (97.2)	2 (2.8)	0.001	43 (59.7)	29 (40.3)	0.031
>70	51 (83.6)	10 (16.4)		49 (80.3)	12 (19.7)	
Household size						
1 and 2	29 (82.9)	6 (17.1)		24 (68.6)	11 (31.4)	
3	60 (85.7)	10 (14.3)	0.740	45 (62.5)	27 (37.5)	0.608
4	88 (87.1)	13 (12.9)		74 (71.2)	30 (28.8)	
5 and 6	23 (79.3)	6 (20.7)		18 (62.1)	11 (37.9)	
Place of residence						

Urban	100 (85.5)	17 (14.5)	0.876	84 (70.0)	36 (30.0)	0.336
Rural	100 (84.7)	18 (15.3)		77 (64.2)	43 (35.8)	
Occupation type						
Employed	47 (87.7)	6 (11.3)		35 (62.5)	21 (37.5)	
Retired	42 (80.8)	10 (19.2)	0.305	40 (75.5)	13 (24.5)	0.385
Housewife	74 (82.2)	16 (17.8)		57 (63.3)	33 (36.7)	
Unemployed	37 (92.5)	3 (7.5)		29 (70.7)	12 (29.3)	
Health insurance status						
Yes	197 (85.7)	33 (14.3)	0.111	158 (67.2)	77 (32.8)	0.733
No	3 (60.0)	2 (40.0)		3 (60.0)	2 (40.0)	
Economic status						
Poorest	32 (74.4)	11 (25.6)		28 (63.6)	16 (36.4)	
Poor	36 (90.0)	4 (10.0)		25 (61.0)	16 (39.0)	
Middle	54 (91.5)	5 (8.5)	0.046	41 (69.5)	18 (30.5)	0.809
Rich	54 (88.5)	7 (11.5)		43 (68.3)	20 (31.7)	
Richest	24 (75.0)	8 (25.0)		24 (72.7)	9 (27.3)	
Note: ^a is the Number (%);** Results of chi-squared test						

Based on the results of multivariate logistic regression, having health insurance (AOR = 12.08, 95% CI: 1.04-140.11), middle economic status (adjusted OR = 5.18, 95% CI, 1.30-20.51) and having the age group 65–70 years (adjusted OR = 7.60, 95% CI, 1.42–40.61) increased the chance of seeking for inpatient care of the perceived need. Further, having a younger age (565: adjusted OR = 0.41, 95% CI, 0.18–0.95; 65–70: adjusted OR = 0.37, 95% CI, 0.15–0.87) reduces the chances in outpatient care seeking of the perceived needs (Table 4).

Table 4

Results of multivariate logistic regression model and adjusted odds ratio (OR) for the outcome of Seeking perceived outpatient and inpatient care need

Variable	Seeking perceived outpatient care need		Seeking perceived inpatient care need	
	Adjusted OR (95% CI)*	P-value	Adjusted OR (95% CI)	P-value
Gender				
Male	0.95 (0.38–2.37)	0.917	0.91 (0.25–3.24)	0.890
Female	1		1	
Education status				
Illiterate and primary school	1.63 (0.75–3.55)	0.214	0.37 (0.09–1.50)	0.378
Middle school and high school	1.22 (0.50–2.98)	0.651	0.56 (0.12–2.57)	0.560
University	1		1	
Marital status				
Single	0.66 (0.23–1.92)	0.456	0.64 (0.15–2.61)	0.537
Married	0.87 (0.42–1.80)	0.725	1.30 (0.46–3.68)	0.612
Divorced/ Widow	1		1	
Age group				
≥65	0.41 (0.18–0.95)	0.037	0.50 (0.18–1.34)	0.263
65–70	0.37 (0.15–0.87)	0.023	7.60 (1.42–40.61)	0.018
<70	1		1	
Household size				
1 and 2	1.47 (0.48–4.52)	0.494	2.22 (0.49–9.92)	0.295
3	1.01 (0.38–2.64)	0.986	2.97 (0.76–11.52)	0.114
4	1.62 (0.63–4.10)	0.310	2.91 (0.80–10.56)	0.103
5 and 6	1		1	
Place of residence				
Urban	1.17 (0.65–2.10)	0.588	0.83 (0.35–1.94)	0.671
Rural	1		1	
Occupation type				

Variable	Seeking perceived outpatient care need		Seeking perceived inpatient care need	
	Adjusted OR (95% CI)*	P-value	Adjusted OR (95% CI)	P-value
Employed	0.56 (0.22–1.46)	0.240	0.80 (0.15–4.21)	0.799
Retired	1.12 (0.41–3.01)	0.822	0.49 (0.10–2.25)	0.361
Housewife	0.65 (0.20–2.10)	0.475	0.49 (0.07–3.11)	0.451
Unemployed	1		1	
Health insurance status				
Yes	0.97 (0.14–6.37)	0.976	12.08 (1.04-140.11)	0.046
No	1		1	
Economic status				
Poorest	0.74 (0.26–2.07)	0.569	1.19 (0.36–3.97)	0.767
Poor	0.82 (0.27–2.45)	0.725	2.63 (0.57–12.11)	0.215
Middle	1.07 (0.39–2.92)	0.890	5.18 (1.30-20.51)	0.020
Rich	0.99 (0.36–2.70)	0.988	2.32 (0.64–8.42)	0.198
Richest	1		1	
* OR = Adjusted odds ratio, CI = Confidence interval				

The results of socioeconomic-related inequalities in outpatient (need, seeking and use) and inpatient care (need, seeking and use) are reported in Table 5. As demonstrated in the table, the Wagstaff concentration index for need of outpatient care, seeking of outpatient care and use of outpatient care were positive; suggesting that outpatient care in three aspects was more concentrated among the rich. However, the socioeconomic-related inequality was significant only for utilization of outpatient care. The Wagstaff concentration index for need of inpatient care, seeking of inpatient care was positive and for use of inpatient care was negative; however, they are not statistically significant. The concentration curve for utilization of outpatient care is illustrated in Fig. 1. As indicated in the figure, the concentration curve lies in under of perfect equality line; meaning that there is a pro-rich distribution in utilization of outpatient care.

Table 5
Socioeconomic-related inequalities in outpatient and inpatient care

Variables	Relative concentration index	Confidence interval 95%
Outpatient care		
Need	0.03452597	-0.051 to 0.120
Seeking	0.0807	-0.072 to 0.233
Utilization	0.7043	0.5156 to 0.8930
Inpatient care		
Need	0.0317	-0.0546 to 0.1181
Seeking	0.0291	-0.1751 to 0.2334
Utilization	-0.0964	-0.6011 to 0.4082

Discussion

In total, 69.7% of the participants in the last month (the last 30 days) had perceived the need for outpatient care, of which 67.7% had sought for these services, and finally 79.5% of whom had received the services. Unmet need for outpatient services was 46.6%. Perceiving need for a doctor's visit, dental services, and para-clinical services were most prevalent. In the Iranian Utilization of Healthcare Services Survey in 2016, conducted on a population over the age of 15, unmet need for outpatient services was reported at 17% over the past two weeks. About 40% of people cited the lack of affordability as a reason for unmet need for outpatient[12].

In a study conducted in Iran (Kerman city) in the elderly population, the perceiving need for health services during the last two weeks was reported to be about 64%, of which about 71% of these people had referred to medical centers for outpatient services and the most required service was a visit to a specialist doctor. In this study, 29% of people did not go to any center despite the need for outpatient services, and about 68% of them had self-medication. The most important reason for not visiting, despite the need, was that their illness was not serious[15]. In the study of Hassanzadeh et al. In Iran (Markazi Province), about 37% of people needed outpatient care during the last two weeks, of which about 66% sought outpatient care and finally about 98% had received the services[1]. In another study in Iran, households over the age of 65 were more likely to use outpatient services[16]. A study in Brazil found that the elderly population seeking outpatient services was about 64% in the last four months[17].

In our study, the most important reasons for not seeking outpatient care were; "I could not afford it" and "insurance did not cover the costs properly", respectively. In a study in Iran (Tehran), the most important reasons for not using outpatient services were the self-medication, the elimination of the problem and the lack of affordability [1]. In Iran, unlike inpatient services, most outpatient services are provided by the

private sector. In Iran, the difference between private and public sector tariffs is significant and over 100%, and basic insurance in the private sector covers only 70% of public sector tariffs, and 30% of the patient's share and the difference between public and private sector tariffs must be paid by the patient and out of pocket [18–21]. Also, in Iran, basic insurance does not have adequate service coverage and services such as dental and rehabilitation services, which are essential services for the elderly population, are not included in the basic insurance service package [22–24]. In many studies in Iran, the use of outpatient health services and the presence of the elderly in the household were the risk factors for dealing with the catastrophic costs of health [25–28]. In one study conducted in six European countries, the most common barriers to use health services were personal beliefs (I was able to deal with my problems; my problems would be solved), practical barriers (lack of access to a doctor; lack of affordability; lack of knowledge of how to request assistance) and barriers related to stigma were identified[29]. In this study, 29.7% of the elderly needed hospital care during the past year (last 12 months), of which 85.1% sought for these services and finally 97.5% of them received the services.

Unmet need for inpatient services was 17%. The most important reasons for not seeking hospital care were "having the medication at home and taking it," "being away from the hospital," and "maybe I will refer in the future," respectively. In a study in Iran, about 25% of the elderly had been hospitalized in the past six months[15]. A study in India reported a behavior seeking for health problems of about 84%, and the most important reasons for not referring were "lack of money" and "lack of perceiving the need to see a doctor due to problems related to age"[30].

In Iran, most hospital beds are in public sector hospitals and most inpatient services are provided by this sector. In addition, basic insurance covers over 90% of hospital costs in this sector, so financial barriers to the use of inpatient services in the public sector is less common[31]. There is only one private hospital in Kurdistan Province, which provides most of the services related to elective surgery and childbirth. In the study of Borhaninejad et al, in Iran, the highest number of hospitalizations was public hospitals and the most important reason was the lower cost of public hospitals compared to other hospitals[15]. In many studies in Iran, the prevalence of self-medication in the public and the elderly population has been reported and one of the reasons has been reported as not timely visiting health centers and service providers [32–35]. Based on the results of multivariate logistical regression, having health insurance and middle economic status, and having a 65–70 age group increased the chances of seeking inpatient care. According to Anderson's behavioral model, age as "predisposing factors" and insurance status and economic status as "enabling or impeding factors" are the factors influencing the utilization of health services[4].

In various studies in Iran and the world, having insurance and better economic status are the factors influencing the seeking and the use of inpatient services in the elderly and general population [14, 17, 36–42].

In this study, having a younger age reduced the chances of seeking outpatient care. This may be less severe in young elderly. In the study in Iran, no significant relationship was found between outpatient

seeking and marital status, age group, private insurance, job status and place of residence.

In this study, based on the results of the concentration index, there was inequality in using outpatient services and it was significantly concentrated among the rich. These findings are consistent with various studies [1, 14, 43, 44].

The private sector provides most outpatient services in Iran, and basic insurance in this sector does not provide adequate financial protection against health expenditures[25, 26]. Besides, several outpatient services, such as rehabilitation and dental services, which are also essential services for the elderly, are not covered by insurance [45–47].

Conclusion

The elderly population suffers from unmet healthcare needs, especially for outpatient services. The most important reason for not seeking outpatient services was financial barriers and for inpatient services was having the medication at home (self-medication). .Inequality was seen in outpatient health services and was concentrated in the rich population. Designing targeted policies and interventions are required to address barriers in conversion need to the demand in the elderly population to use health services in a timely manner.

Abbreviations

WHO: World Health Organization; OR: Odds Ratio; CI: Confidence Interval

Declarations

Acknowledgment

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Authors' contributions

BP, AMB, and GM designed the study and drafted the article. AMB, SR and MA prepared it for publication. FB, FF and AA designed the study and reviewed the article. All authors have read and approved the manuscript.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

The proposal for this study was approved by the Ethics Committee of Kurdistan University of Medical Science with the file No. IR.MUK. REC.1397/123.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no conflicts interests.

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Figures

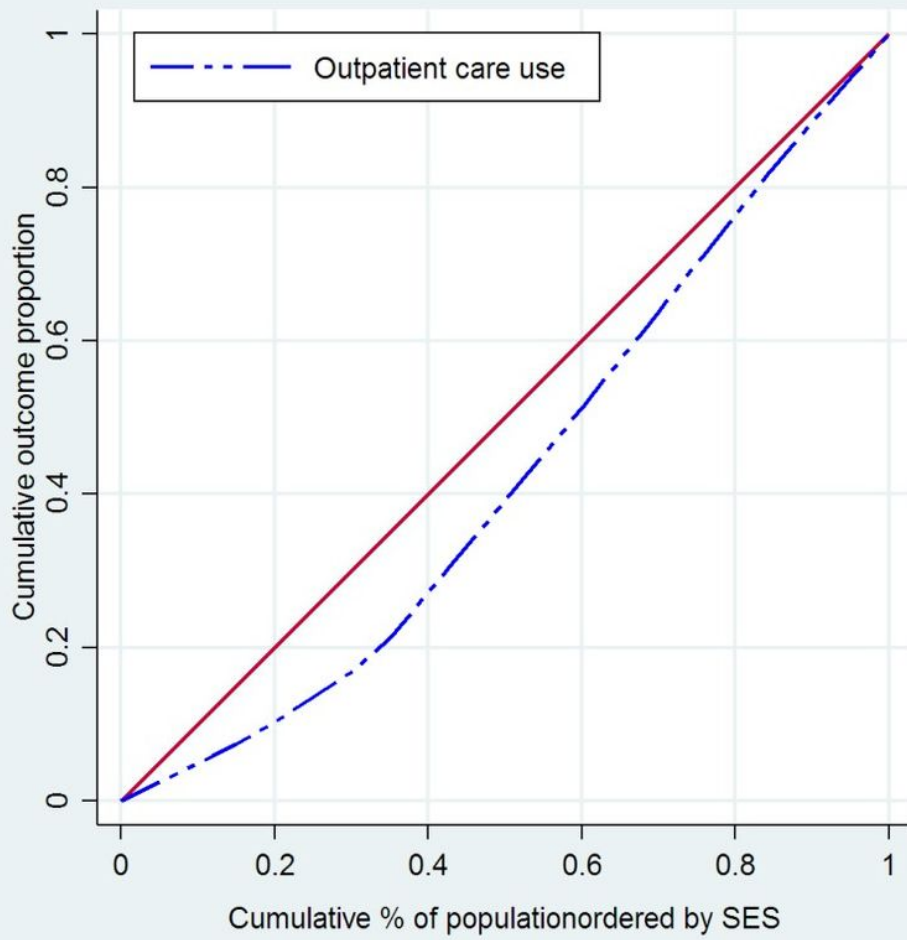


Figure 1

The concentration curve for utilization of outpatient care