

What Drives Public–Private Hospital Choice? Socioeconomic and Health-Insurance Determinants among Households in Kanniyakumari District, Tamil Nadu, India

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ABSTRACT

Healthcare utilisation is influenced by socioeconomic conditions, financial capacity, education, and access to health insurance. This study examines the factors associated with the choice between public and private hospitals among households in Kanniyakumari District, Tamil Nadu. A cross-sectional study was conducted among 386 households, and information was collected on demographic characteristics, socioeconomic conditions, health insurance coverage, and healthcare utilisation. Descriptive statistics and chi-square tests were used to examine differences in hospital choice, followed by multivariable logistic regression to identify independent predictors of private hospital utilisation. The findings show that 62.3% of males and 61.1% of females used private hospitals, with no significant association between gender and hospital choice. Significant differences were observed by age, household income, education, social group, ration card status, residence, and health insurance in the initial analysis. In the adjusted model, household income and education remained significant predictors. Households with a monthly income of ₹20,001–40,000 had higher odds of using private hospitals (AOR = 4.156; 95% CI: 2.273–7.598), while those with income above ₹40,000 had substantially higher odds (AOR = 17.618; 95% CI: 1.691–183.562). Higher educational attainment was also strongly associated with private hospital use. Health insurance, residence, social group, gender, and age were not significant after adjustment. The findings indicate that economic and educational differences play an important role in shaping hospital choice. Strengthening the accessibility and quality of public hospitals and improving awareness and effective use of health insurance may help reduce inequalities in healthcare access. The study provides household-level evidence on public–private hospital choice in Kanniyakumari District

Keywords: Healthcare utilisation; Hospital choice; Public hospitals; Private hospitals; Household income; Education; Health insurance; Kanniyakumari District

INTRODUCTION

Choosing a hospital is an important part of seeking healthcare. In India, households can use services from both public and private hospitals. The decision may depend on the type of illness, availability of services, distance, waiting time, cost and the trust placed in the provider. The choice of hospital is therefore closely linked with how households obtain healthcare. Public hospitals provide low-cost services and remain important for many households. Private hospitals are also widely used because they may offer easier access to doctors, diagnostic services and different treatment options. The use of private care, however, can place a greater financial burden on households. These differences make hospital choice an important issue in discussions on access to healthcare. Household resources may shape this decision. Families with higher income may be better able to meet the cost of private treatment, while families with fewer resources may depend more on public facilities. Education can also influence the decision by affecting awareness of healthcare services and the ability to obtain and understand health information.

Health insurance has added another dimension to healthcare choice. Insurance can reduce the amount that

households have to pay when they receive covered treatment. At the same time, the usefulness of insurance depends on factors such as the availability of participating hospitals, covered services and awareness of scheme benefits. Thus, insurance coverage may not have the same effect on hospital choice for all households. Despite the importance of these issues, there is limited household-level evidence on how socioeconomic conditions and health insurance are related to the choice between public and private hospitals in Kanniyakumari District. Examining these factors together can provide a better understanding of the pattern of healthcare provider choice in the district. Against this background, the present study examines public–private hospital choice among households in Kanniyakumari District, Tamil Nadu, with particular attention to socioeconomic characteristics and health insurance coverage

REVIEW OF LITERATURE

Chatterjee et al. (2019) found that individual and socioeconomic characteristics were associated with the use of public and private healthcare services. Their study indicates that people from different social and economic backgrounds do not use healthcare providers in the same way. Financial capacity is an important consideration in private healthcare use. Nandi et al. (2017) examined hospital utilisation in public and private sectors and reported differences in the use of these services and the financial burden associated with treatment. The findings indicate that the cost of care can influence the choice of healthcare provider. Education has also been linked with healthcare-seeking behaviour. Better educated individuals may have greater awareness of healthcare services and may be more familiar with different treatment options. Education can therefore influence decisions about when and where to seek treatment.

Several studies have examined the role of health insurance in healthcare utilisation. Prinja et al. (2017) found that publicly financed health insurance schemes can improve healthcare utilisation and provide financial protection, although the effects differ across schemes and population groups. Karan et al. (2017) reported that insurance coverage was associated with lower out-of-pocket spending among poorer households. Studies of publicly financed insurance have also identified limitations in access to covered care. Garg et al. (2020) examined the Pradhan Mantri Jan Arogya Yojana and reported evidence of improved access and financial protection, while challenges in obtaining hospital care remained. This indicates that insurance coverage needs to be considered alongside the availability and use of healthcare providers. Research on the private sector has further shown that greater availability of private services does not necessarily mean equal access for all households. Katyal et al. (2015) highlighted concerns related to access and affordability in private tertiary healthcare. These concerns are particularly relevant for households with limited financial resources. Earlier studies provide evidence on healthcare utilisation, private-sector use and the role of health insurance. However, fewer studies have examined these factors together when explaining the choice between public and private hospitals at the household level. Evidence from Kanniyakumari District is also limited. The present study addresses this gap by examining socioeconomic characteristics and health insurance coverage in relation to public–private hospital choice.

METHODOLOGY

Study Design and Area

This study used a cross-sectional research design to examine the factors associated with public–private hospital choice among households in Kanniyakumari District, Tamil Nadu, India. The study was conducted during 2024 January to April 2024. Both public and private healthcare facilities are available in the district, making it suitable for studying household hospital choice.

Sample and Data Collection

The study included 386 households from Kanniyakumari District. Data were collected using a structured questionnaire. Information was obtained on demographic characteristics, socioeconomic conditions, health-insurance status and hospital use. For the hospital-choice analysis, 380 households with complete information were included in the final regression model.

Statistical Analysis

The data were analysed using SPSS. Frequencies and percentages were used to describe the study households. The chi-square test was used to examine the association between household characteristics and hospital choice. Binary logistic regression was used to identify the factors associated with hospital choice. Adjusted odds ratios (AOR), 95% confidence intervals and p-values were reported. Model fit was assessed using the likelihood-ratio chi-square test, Nagelkerke R^2 and the Hosmer–Lemeshow test. The predictive performance of the model was assessed using the ROC curve and area under the curve (AUC). A p-value below 0.05 was considered statistically significant.

RESULTS

Socioeconomic and Demographic Characteristics of the Study Households

The socioeconomic and demographic characteristics of the households included in the study are presented in Table 1. The table describes the respondents according to place of residence, age, gender, educational qualification, monthly household income, social group, and health insurance coverage.

Table 1 Socioeconomic and Demographic Characteristic of the Study Households

Variable	Category	Frequency (n)	Percentage
Place of residence	Urban	194	50.3
	Rural	192	49.7
Age group	30–40	42	10.9
	41–50	127	32.9
	51–60	129	33.4
	Above 60	88	22.8
Gender	Male	332	86.0
	Female	54	14.0
Educational qualification	No formal education	9	2.3
	Primary	36	9.3
	Middle	39	10.1
	High school	94	24.4
	Higher secondary	80	20.7
	Diploma/ITI	21	5.4
	Graduate	42	10.9
	Postgraduate	9	2.3
	Professional	52	13.5
	MPhil/PhD	4	1.0
Monthly household income	0–10,000	26	6.7
	10,001–20,000	155	40.2
	20,001–30,000	127	32.9
	30,001–40,000	44	11.4
	40,001–50,000	14	3.6
	Above 50,000	20	5.2
Social group	SC	50	13.0
	ST	15	3.9
	BC	236	61.1
	MBC	29	7.5
	General/Forward	56	14.5
Health insurance coverage	Yes	203	52.6
	No	183	47.4

Source: Primary Data

The Table 1 presents the socioeconomic and demographic characteristics of the 386 households included in the study. The distribution of households by place of residence was almost equal, with 50.3 per cent from urban areas and 49.7 per cent from rural areas. Most respondents were between 41 and 60 years of age, accounting for 66.3 per cent of the sample, while 22.8 per cent were above 60 years. The majority of respondents were male, accounting for 86.0 per cent of the sample. Educational levels varied among the respondents. High school education was the most common level, accounting for 24.4 per cent, followed by higher secondary education at 20.7 per cent and professional education at 13.5 per cent. Regarding monthly household income, 40.2 per cent of households reported an income between Rupees 10,001 and Rupees 20,000, while 32.9 per cent reported an

income between Rupees 20,001 and Rupees 30,000. The majority of households belonged to the Backward Class social group, accounting for 61.1 per cent. Health insurance coverage was reported by 52.6 per cent of households, whereas 47.4 per cent did not have health insurance coverage.

Association between Socioeconomic Characteristics and Hospital Provider Choice

The association between selected socioeconomic characteristics and hospital provider choice among the 380 households included in the analysis is presented in Table 2. The table compares the distribution of households using public and private hospitals and reports the chi-square test results.

Table 2 Association between Socioeconomic Characteristics and Hospital Provider Choice N = 380

Variable	Category	Public hospital n (Per cent)	Private hospital n (Per cent)	Chi-Square	p-value
Gender	Male	123 (37.7)	203 (62.3)	0.026	.871
	Female	21 (38.9)	33 (61.1)		
Age group	30–40	8 (20.0)	32 (80.0)	17.562	.001
	41–50	37 (29.4)	89 (70.6)		
	51–60	54 (42.5)	73 (57.5)		
	Above 60	45 (51.7)	42 (48.3)		
Monthly household income	0–10,000	21 (91.3)	2 (8.7)	114.741	<.001
	10,001–20,000	94 (61.0)	60 (39.0)		
	20,001–30,000	24 (19.2)	101 (80.8)		
	30,001–40,000	4 (9.1)	40 (90.9)		
	40,001–50,000	0 (0.0)	14 (100.0)		
	Above 50,000	1 (5.0)	19 (95.0)		
Educational qualification	No formal education	9 (100.0)	0 (0.0)	119.604	<.001
	Primary	29 (87.9)	4 (12.1)		
	Middle	24 (61.5)	15 (38.5)		
	High school	49 (52.7)	44 (47.3)		
	Higher secondary	23 (28.8)	57 (71.3)		
	Diploma/ITI	2 (9.5)	19 (90.5)		
	Graduate	3 (7.5)	37 (92.5)		
	Postgraduate	2 (22.2)	7 (77.8)		
	Professional	3 (5.8)	49 (94.2)		
	MPhil/PhD	0 (0.0)	4 (100.0)		
Social group	SC	28 (56.0)	22 (44.0)	44.841	<.001
	ST	11 (91.7)	1 (8.3)		
	BC	85 (36.3)	149 (63.7)		
	MBC	15 (53.6)	13 (46.4)		
	General/Forward	5 (8.9)	51 (91.1)		
Ration card	PHH	47 (31.3)	103 (68.7)	34.716	<.001
	AAY	42 (71.2)	17 (28.8)		
	NPHH	55 (32.9)	112 (67.1)		
	No ration card	0 (0.0)	4 (100.0)		
Residence	Urban	57 (29.7)	135 (70.3)	11.107	.001
	Rural	87 (46.3)	101 (53.7)		
Health insurance	Yes	59 (29.2)	143 (70.8)	13.827	<.001
	No	85 (47.8)	93 (52.2)		

Source: Computed from Primary Data

The Table 2 shows the association between household characteristics and hospital provider choice. Age, monthly household Income, educational qualification, social group, ration card type, place of residence and health insurance were significantly associated with hospital choice. Private hospital use was generally higher among households with higher income and education, as well as among urban and insured households. In contrast, public hospital use was more common among older and economically disadvantaged households. Gender was not significantly associated with hospital choice. These bivariate associations were further examined using multivariable logistic regression.

Determinants of Public–Private Hospital Choice

The results of the multivariable logistic regression analysis are presented in Table 3. The model examined the independent association of demographic, socioeconomic and health-insurance characteristics with public–private hospital choice. Adjusted odds ratios, 95 per cent confidence intervals and p-values are reported.

Table 3 Multivariable Logistic Regression Analysis of Determinants of Public–Private Hospital Choice

Predictor	Comparison	AOR	95% CI	p-value
Gender	Female versus Male	0.809	0.355–1.844	.614
Residence	Rural versus Urban	1.001	0.556–1.803	.996
Health insurance	Yes versus No	1.458	0.841–2.526	.179
Age	41–50 versus 30–40	0.799	0.283–2.257	.672
	51–60 versus 30–40	0.397	0.138–1.143	.087
	Above 60 versus 30–40	0.862	0.282–2.639	.795
Household income	Rupees 20,001–40,000 versus Rupees 20,000 or below	4.156	2.273–7.598	<.001
	Above Rupees 40,000 versus Rupees 20,000 or below	17.618	1.691–183.562	.016
Ration card	AAY versus PHH	0.673	0.259–1.749	.416
	NPHH and No card versus PHH	0.971	0.529–1.783	.925
Social group	BC or MBC versus SC or ST	1.150	0.513–2.576	.734
	General or Forward versus SC or ST	3.070	0.814–11.572	.098
Education	Middle or High school versus Primary or below	3.621	1.047–12.527	.042
	Higher secondary or Diploma versus Primary or below	10.882	2.903–40.795	<.001
	Graduate and above versus Primary or below	20.443	4.596–90.936	<.001

Source: Computed from Primary Data

The multivariable analysis showed that household income and education were significantly associated with private hospital choice. Compared with households earning Rupees 20,000 or below, the odds of choosing a private hospital were higher among households earning Rupees 20,001 to Rupees 40,000 and those earning above Rupees 40,000. Education showed a similar pattern, with higher educational levels associated with greater odds of private hospital choice. Health insurance was not significantly associated with hospital choice after adjustment. Gender, residence, age, ration card type and social group were also not statistically significant in the adjusted model. Overall, household income and education emerged as the main independent factors associated with public–private hospital choice.

Predictive Performance of the Final Logistic Regression Model

The predictive performance and goodness of fit of the final logistic regression model are presented in Table 4.

Table 4 Predictive Performance of the Final Logistic Regression Model

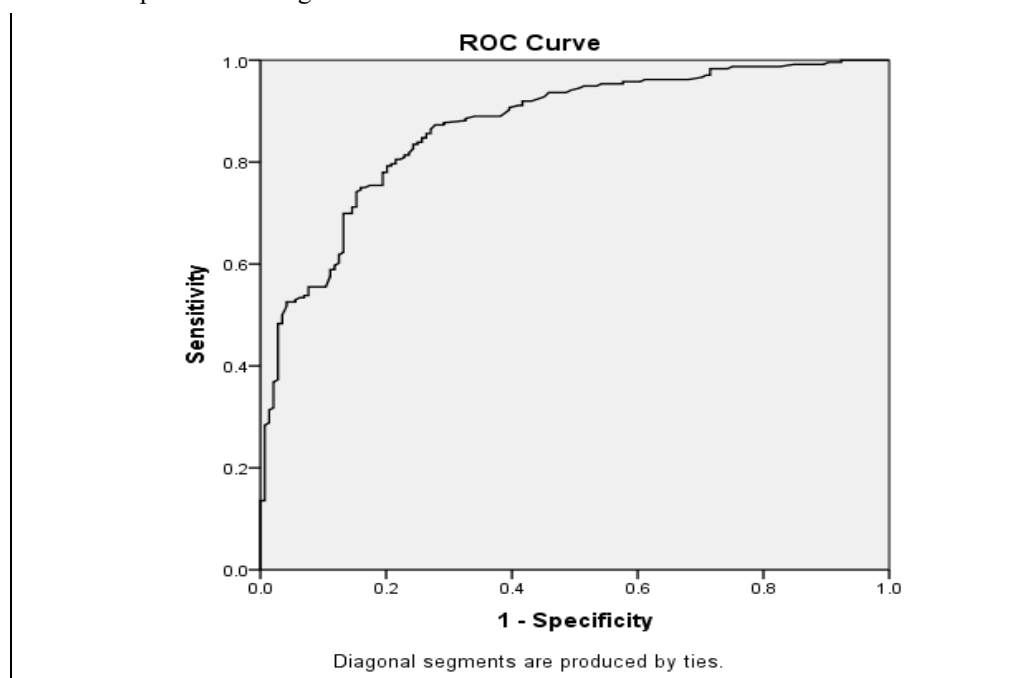
Model performance measure	Estimate
Likelihood-ratio chi-square (df)	173.300 (15)
Model p-value	<.001
Cox and Snell R ²	0.366
Nagelkerke R ²	0.498
Hosmer–Lemeshow chi-square (df)	10.681 (8)
Hosmer–Lemeshow p-value	.220
Overall classification accuracy	81.3 per cent
Public hospital correctly classified	72.9 per cent
Private hospital correctly classified	86.4 per cent
AUC	0.869
AUC standard error	0.018
95 per cent confidence interval for AUC	0.833–0.905
AUC p-value	<.001

Source: Computed from Primary Data

The Table 4 shows that the final logistic regression model was statistically significant, with a likelihood-ratio chi-square value of 173.300 and a p-value below .001. The Nagelkerke R squared value was 0.498. The Hosmer–Lemeshow test was not statistically significant, indicating an acceptable fit of the model. The model correctly classified 81.3 per cent of households, with higher classification accuracy for private hospital choice than public hospital choice. The model also showed good discriminatory ability, with an area under the curve of 0.869 and a 95 per cent confidence interval ranging from 0.833 to 0.905. The area under the curve was statistically significant, with a p-value below .001. These results indicate that the final model had good ability to distinguish between households choosing public and private hospitals.

Receiver Operating Characteristic Analysis

The receiver operating characteristic curve was used to assess the ability of the final logistic regression model to distinguish between households choosing public and private hospitals. The ROC curve and corresponding area under the curve are presented in Figure 1.



AUC = 0.869 (95% CI: 0.833–0.905; $p < .001$).

Figure 1 Receiver Operating Characteristic Curve of the Final Logistic Regression Model for

Public–Private Hospital Choice

The ROC analysis showed good discriminatory performance of the final logistic regression model. The area under the curve was 0.869, with a 95 per cent confidence interval from 0.833 to 0.905. The result was statistically significant with a p-value below .001. This indicates that the model had good ability to distinguish between households choosing public and private hospitals.

DISCUSSION

The findings show that household income and education are important in the choice between public and private hospitals in Kanyakumari District. Households with better economic and educational backgrounds were more likely to use private hospitals. This may be because higher-income households have greater ability to meet healthcare expenses and may have more freedom to choose healthcare providers. Households with lower incomes may prefer public hospitals because they are generally more affordable. Education may also influence hospital choice. People with higher levels of education may have better access to information about healthcare facilities and treatment options. They may also find it easier to compare available services and decide where to seek treatment. This indicates that differences in hospital choice are related not only to the ability to pay but also to access to information. Health insurance showed a different pattern. Although insurance coverage was associated with hospital choice in the initial analysis, it was not significant after other household characteristics were considered. This indicates that insurance coverage alone may not determine the type of hospital used. Factors such as the availability of covered services, empanelled hospitals, awareness of benefits and the process of using insurance may also influence healthcare decisions. Some differences observed in the initial analysis were also not present after adjustment. In particular, residence and social group were not significant in the final model. This suggests that the apparent differences between these groups may partly reflect differences in their wider socioeconomic conditions.

The findings have practical importance for healthcare planning. Public hospitals remain important for households with limited financial resources, while private hospitals are more frequently used by households with greater economic capacity. Improving the quality and accessibility of public healthcare, together with better information about health insurance benefits and easier access to covered services, may help reduce barriers to appropriate healthcare. This study provides household-level evidence on public–private hospital choice in Kanyakumari District. Since the study is cross-sectional, the findings show associations and cannot establish causal relationships. Future studies using longitudinal data and information on the reasons behind hospital choice could provide further understanding of household healthcare decisions.

CONCLUSION

The study shows that household socioeconomic conditions play an important role in public–private hospital choice in Kanniyakumari District. Income and education were the main factors associated with the choice of private hospitals, while health insurance did not remain significant after other household characteristics were considered. The findings suggest that access to healthcare is influenced not only by insurance coverage but also by the economic and educational position of households. The results highlight the need for healthcare policies that address both financial and non-financial barriers to care. Strengthening public healthcare services, improving awareness of available health insurance benefits and ensuring better access to empanelled healthcare providers may help households make healthcare choices without facing unnecessary financial pressure. Greater attention to economically vulnerable households is particularly important for improving equitable access to healthcare

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